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THE CONDOR

A Magazine of Western
Ornithology



Volume 44

March-April, 1942

Number 2



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THE CONDOR

A Magazine of Western Ornithology

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THE CONDOR

VOLUME 44

MARCH-APRIL, 1942

NUMBER 2

MIGRATION OF THE TRICOLORED RED-WING IN CENTRAL CALIFORNIA

By JOHNSON A. NEFF

In 1930 the writer was assigned to a study of the distribution, population, economic status, and control of the Tricolored Red-winged Blackbird (*Agelaius tricolor*) in California. In the course of subsequent seasons, reports by the author have covered various parts of the study, the most important being one on distribution and population which was published in the Condor (39, 1937:61-81).

Throughout the entire period of observation of this species its extremely gregarious and erratic nature has been impressed upon me. Variations from year to year have often been readily visible, and study of those conditions which might logically have caused the variations have failed to produce an explanation for them. During a given season the marsh growth of a county in central California may have been thickly populated by large colonies of these birds; in the next season or one closely succeeding, it might have shown a minimum of colonies, although to the human eye conditions were unchanged. In most of the counties of the Sacramento Valley, in some of the counties of the San Joaquin Valley, and in a few of the coastal counties, there is always ample food for these birds; also there are abundant acreages of cattail marshes which would furnish nesting locations for far more birds than are now present. Likewise, during certain cold winters this bird has been noted in great numbers in the Sacramento Valley, whereas in other noticeably mild winters the bird has been found in the same area only in small numbers.

At the present time no logical explanation is at hand for the many erratic variations that have been observed. Theories have from time to time developed, only to be cast aside as further observation disproved them. The suspicion persists that this species, so unusual and interesting in many of its life habits, is sheerly and illogically erratic in its seasonal movements and activities.

Since the migrations or seasonal movements of these blackbirds have a direct bearing on the depredations they commit, banding was attempted in order to shed more light on this phase of their natural history. This report attempts to summarize the data resulting from scattered volunteer banding as well as those resulting from extensive banding operations carried on officially under the writer's supervision in the period from 1931 to 1940.

The Tricolored Red-wing is primarily a California species, entering Oregon apparently only in the region of Klamath Falls; hence all banding has been done by persons operating in California. According to the records of the Fish and Wildlife Service a total of 19,700 Tricolors, including 16,300 handled under the writer's supervision, had been banded at the close of the calendar year 1940.

Banding since 1931 has been restricted to nestlings in the large nesting colonies described by the writer in his report of 1937 (*loc. cit.*). Numbers of nests within a single colony may, as reported therein, vary from a few to more than 100,000 nests. Therefore

it is possible for the operator to band large numbers of birds in a relatively short time if he is willing to work knee to hip deep in dense cattails under a sultry sun. In the writer's experience one person can by hard work place as many as 500 to 700 bands per day. In a dense colony one can frequently place close to 100 bands per hour, but if the nests are scattered, the average falls far lower, and five to seven hours of such labor is an exhausting day for even the huskiest bird student.

Banding normally should take place between the seventh and tenth days after the eggs have hatched. By the tenth day it is common to see the unfeathered young leave the nest and climb about in the thick marsh growth or fall into the water below; even in the latter instance they swim freely to near-by stalks and climb to safety above the water level. When banding has been properly timed and executed, little mortality results.

Banding as applied to this species has been intermittent and occasional. Until the writer's study aroused interest in them in 1930, only 736 Tricolors had been banded. In 1931 a field party which included Dr. T. I. Storer, Dr. J. M. Linsdale, T. T. McCabe, and others, banded 2150 nestling Tricolors in two nesting colonies in Glenn and Colusa counties. Work under the writer's supervision has taken place for the most part in Merced County, and to lesser extent in Glenn, Colusa, and Sacramento counties, with incidental bandings elsewhere, and has covered the years from 1932 to 1940, inclusive, excepting 1934 and 1935. In 1939, Mr. C. V. Duff, of Hollywood, became interested in the species, and after visiting a colony in Kern County with the writer returned to the area and banded 600 nestlings near Connor Station, in the Buena Vista Lake district. Table 1 summarizes the banding of Tricolored Red-wings through 1940, as represented in the banding files of the Fish and Wildlife Service and furnished to the writer by Mr. F. C. Lincoln.

The writer has found it impracticable to attempt to trap adult birds because of the pressure of other work.

TABLE 1
Tricolored Red-wings banded in California, 1924-1940

Year	Number banded	Year	Number banded
1924	28	1933	1400*
1925	596	1934	0
1926	88	1935	0
1927	0	1936	10*
1928	13	1937	2500*
1929	0	1938	7200*
1930	8	1939	3000*
1931	2153	1939	600
1932	1202*	1940	1000*

*Banded by or under supervision of the writer.

Almost all of the return records that are at hand today are those of birds that have been killed or found dead. Only one or two of the records are of birds accidentally captured alive and released. In the earlier part of the study period, several of the banded birds were killed by poisoned baits used as a means of blackbird control in fields of milo maize and rice. Wherever the writer had any connection with the control operations, he examined every dead bird that could be found. During the period from 1935 to 1940 blackbird depredations in rice fields were of lesser intensity, and control operations by means of poisoned baits were almost entirely discontinued.

Market hunting of blackbirds in the interior valleys of California became a thriving business in about 1928 or 1929, and a dependable market for them was developed largely through Italian produce firms in the larger cities. During the depression years the

number of men so engaged increased markedly, but decreased by 1936 or 1937. Using automatic shotguns and firing into dense masses of blackbirds feeding on rice stubble, these market hunters killed large numbers of all species of blackbirds; one group of market hunters shipped nearly 400,000 dressed blackbirds from one Sacramento Valley shipping point in five seasons, and during the winter season of 1935-1936 they shipped about 88,000 birds. The writer asked certain of these groups to turn in all bands that they found, and the results proved them to be fine cooperators. Not all market hunters were informed, however, and accordingly many bands may not have been turned in.

Numerous blackbirds are shot by ranchers or by bird herders hired by them to drive the flocks away from their crops, which consist of rice, milo maize, soft-shelled almonds, and some others. Few of these birds are ever examined by the rancher, whose only interest is to drive the birds away from his crops. Consequently, it is highly probable that many bands are lost on birds so killed. On some occasions the rancher does notice a band on the leg of a bird, and a few have been reported from this source.

Many people, frequently town or city dwellers, find pleasure in getting into the country and shooting at something, and because blackbirds are abundant, they commonly are used as targets. A number of bands has been received from such shooters.

The ratio of returns to birds banded, however, is extremely low, particularly in instances where no trapping of adults is attempted. With 19,700 Tricolors banded during the past 20 years, and with only 93 return records listed, the percentage is 0.47. Even so, the information that has resulted from the banding of the past few years has been of value and applies directly to problems arising in the protection of farm crops commonly attacked by Tricolored Red-wings.

BANDING LOCATIONS

For the 736 birds banded prior to 1930, the writer does not have information concerning the banding locations. From return records it is evident that part of the total of 28 birds for 1924 were banded in the vicinity of Laguna Beach, Orange County, and that at least part of the 13 birds banded in 1928 were banded near Redlands, San Bernardino County.

Kern County.—This county, the southernmost in the great San Joaquin drainage, is normally well populated with Tricolored Red-wings. With the high Tehachapi Mountains forming its southern boundary and with its fairly extensive nesting areas and abundant grainfields to furnish food, it offers a location where blackbird banding would produce information of interest and value. However, only 600 birds have been banded, these near Connor Station, east of Buena Vista Lake, on June 3, 1939, by C. V. Duff of Hollywood.

Merced County.—Grinnell (Pac. Coast Avif. No. 11, 1915:104) called the central San Joaquin Valley the metropolis of the species. Merced County lies near the southern extremity of the rice-producing area where blackbirds are of major economic importance. Most of California's 100,000 to 125,000 acres of rice are to be found in the interior valley, in an area extending from extreme northern Fresno County to Butte and Glenn counties some 220 miles northward. Under these circumstances it was desirable to ascertain the normal range of the abundant Tricolor population of the Merced County marshes, to find out where they went after the nesting season, and to determine what effect their numbers might have upon rice culture. Consequently, the writer's banding operations have been centered in this county.

Banding in Merced County was instituted in 1933 by an assistant, Mr. M. R. Gross, who banded 1200 nestlings in three separate marshes. No banding was done here in 1934, 1935, or 1936. In 1937, with assistant Calvin Stevens, 2500 nestlings were banded in six marshes ranging from Los Baños to Snelling. In 1938, with the assistance of Calvin and Wilbur Stevens, 7200 nestlings were banded in three colonies at Los Baños, Livingston, and Snelling. The same men in 1939 cooperated in banding 3000 nestlings, all in marshes some seven miles northeast of Los Baños; in 1940, 1000 more were banded in the same general area.

Stanislaus County.—Ten nestlings were banded near Oakdale in June 1936 by cooperator L. E. Macomber. Thus far no returns have been received from this banding.

Sacramento County.—On June 8, 1932, the writer banded 100 nestlings, and on June 7, 1933, 200 more in a marsh some 18 miles east of Sacramento; no returns have been received from this group.

Sutter County.—On May 29, 1932, 100 nestlings were banded in a marsh about 20 miles north of Sacramento, but no returns have been received.

Glenn County.—On May 30 and 31, 1931, Mr. T. T. McCabe, Dr. T. I. Storer, Dr. J. M. Linsdale, and others, banded 2150 nestlings in nesting colonies between Glenn and Princeton; since one colony was very close to the county line it may possibly have been in Colusa County.

On June 21 and 22, 1932, the writer banded some 1000 nestlings in two colonies, one six miles east of Willows, the other four miles northeast of Norman.

RETURN RECORDS

Southern California.—Only three return records are known from the region south of the Tehachapi Mountains (fig. 13). Two birds marked at Laguna Beach, Orange County, were recovered, one near Sawtelle, Los Angeles County, the other near Fallbrook, San Diego County. One bird banded at Redlands, San Bernardino County, was found dead almost five years later between Redlands and Beaumont.



Fig. 13. Return records of banded Tricolored Red-winged Blackbirds in southwestern California; 1924-1928. Triangle marks banding locality; circles, points of recovery.

Kern County.—Thus far only one return record has been received from the 600 birds banded in this county; this one was shot in 1940 about 140 miles northwest of the original banding location, near Dos Palos, Merced County (fig. 14).

Merced County.—Figure 15 is a composite illustration of the movement of birds raised in this county as shown by the total of 69 return records. Of these, 20 were within the county, while 49 were outside the county. The diameter of the circle is approximately 40 miles, and within it are situated all of the banding stations, about 12 in number, and all of the 20 return records obtained within Merced County.

The most distant record is the one bird returned from Willows, Glenn County, about 175 miles in an air line from the banding location at Los Baños.

Glenn County.—From the 2150 nestlings banded by McCabe and his party in 1931, 13 return records have been received. Of these, seven occurred within the shaded square (fig. 14) which also encloses the banding stations. All seven were killed in blackbird control operations in rice fields. One of the six records outside the area furnishes the present distance record, the bird being shot at Sanger, Fresno County, about 225 miles away.

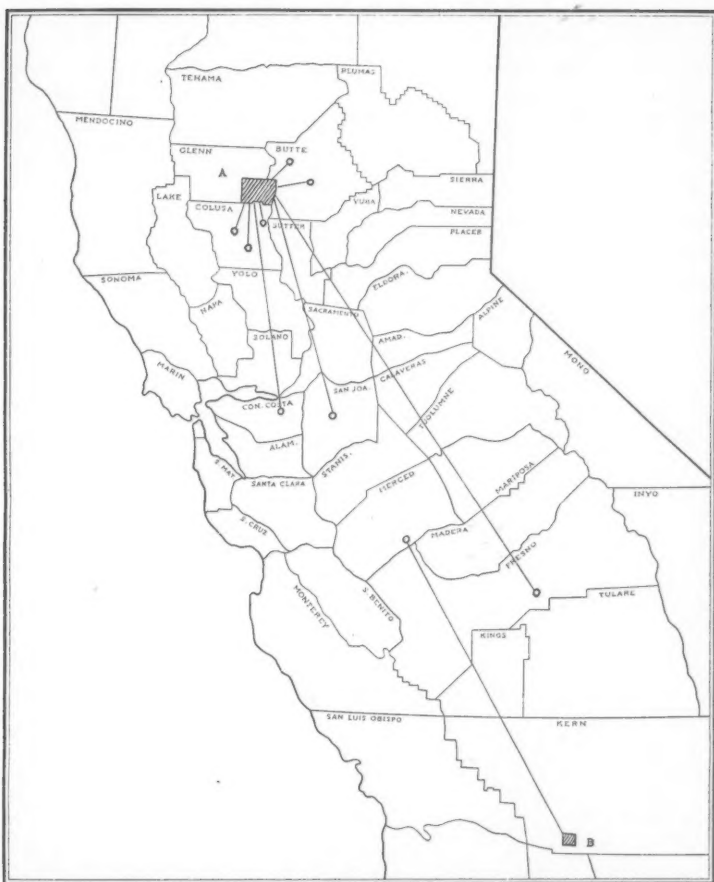


Fig. 14. Returns from nestling Tricolored Red-wings banded in Glenn County (A) from 1930 to 1933 and in Kern County (B) in 1939.

From the 1000 nestlings banded by the writer in virtually the same locations in 1932, only six return records were received, one occurring within the shaded square of figure 14, the other five outside. The most distant was a bird shot at Brentwood, Contra Costa County.

DISCUSSION

Because of the small number of return records, any discussion of dispersal from the breeding grounds must be considered as preliminary and incomplete. As already stated, nesting distribution is erratic. Winter populations in the central valleys have also exhibited the same erraticism without evident correlation with weather conditions. However, as early as 1931 the writer noted that winter populations were far greater than summer populations in those areas contiguous to the delta of the Sacramento and San

Joaquin rivers, in the vicinity of Suisun, San Pablo, and San Francisco bays, and in the coastal counties from San Francisco south to San Luis Obispo. On many occasions large populations have been observed feeding in stubble or grassland in Contra Costa, western Solano, Napa, Sonoma, and other counties of this coastal region where in summer it was difficult to locate even a few birds.

Banding operations in Merced County have contributed substantiating evidence to these field observations. From 1933 to 1938 the return records for fall and winter as they arrived began to form a definite chain to the northwest through Stanislaus, San Joaquin, and Contra Costa counties, into the southwesterly extension of Sacramento County and Yolo County, thence westward into Solano and Alameda counties; also they occurred directly westward in San Mateo and Santa Clara counties.

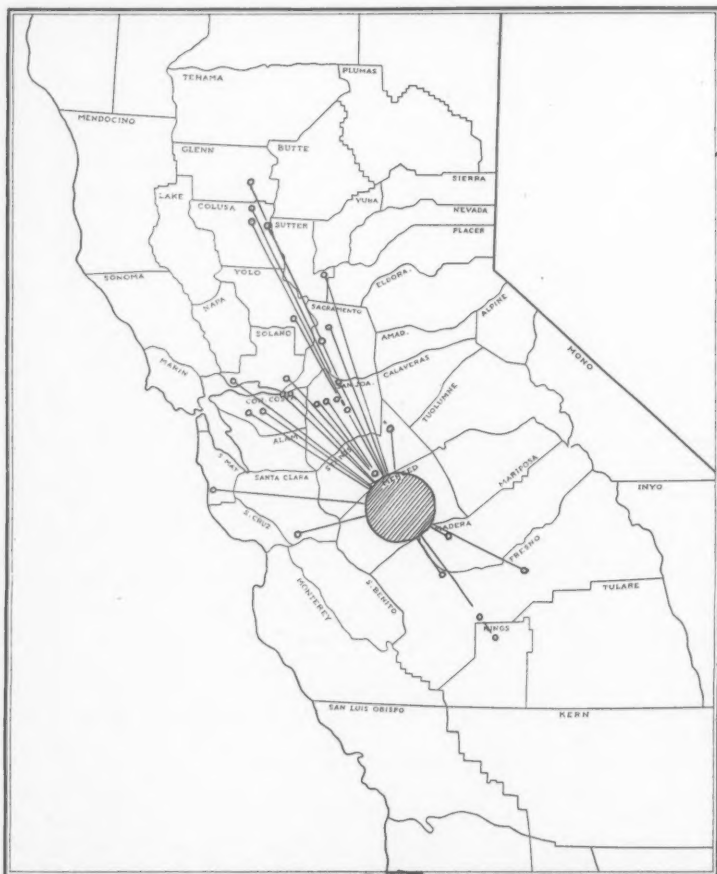


Fig. 15. Returns of nestling Tricolored Red-wings banded in Merced County; 1933-1940. The shaded area, about 40 miles in diameter, covers all banding localities.

Banding in Glenn County in 1931 and 1932 added evidence as to the wintering range, as returns were received from Colusa, Contra Costa, and San Joaquin counties where the Glenn County birds apparently wintered in company with birds from the San Joaquin Valley.

From Merced nesting and banding locations the trail to the delta and coastal areas is represented by the following returns received up to February 15, 1941.

County	Specific locations
Stanislaus	Turlock, Oakdale
San Joaquin	French Camp, Stockton, Lodi, Roberts Island, Staten Island, Sherman Island
Sacramento	Thornton, Sacramento
Contra Costa	Pittsburg, Antioch, Walnut Creek, Nichols
Yolo	Woodland
Solano	Denverton, Vallejo
San Mateo	Pescadero
Santa Clara	Gilroy

From banding in Glenn County, the winter locations include Maxwell and Williams in Colusa County, Brentwood in Contra Costa County, and Stockton in San Joaquin County.

Throughout the entire period only six return records have come from points south of Merced County. One was the record flight from near Willows, Glenn County, to Sanger, Fresno County. The other five, all of Merced County banding, were recovered, respectively, at Fresno, Firebaugh, Riverdale, Dairyland, and Lemoore. In Duff's one return record, the bird moved from Connor Station, Kern County, about 140 miles northward to Dos Palos, Merced County.

In October 1938 the first record came in which showed there was movement between the Merced nesting marshes and the Sacramento Valley rice fields. During the remainder of the winter of 1938-39 and that of 1939-40 others followed until at the present time the writer has 20 return records for birds which moved from Merced to the central Sacramento Valley (Trowbridge, Colusa, Maxwell, Delevan, and Willows). Most of these were birds of the year, but others were one and one-half years old.

It is fairly evident that the Tricolored Red-wing of the San Joaquin Valley does not migrate southward in winter except casually. The few southerly records as compared with the extensive northwesterly movement definitely indicates that their preference in winter is for the alluvial plains adjacent to the delta, for farming areas of the coast and bay districts, and for rice-stubble fields of Glenn and Colusa counties. Indeed, Mr. Duff's one record from Kern County birds makes it appear that possibly this northwesterly autumn-winter migration may extend the whole length of the great valley.

Recovery records of Merced County birds shot in the Sacramento Valley rice fields occur mostly in October, November, and December; these birds might later in the winter have wandered back southward. One record of recovery on May 17, 1939, in Colusa County, however, indicates that some at least were remaining to nest.

Normally one would have expected the major movement of these Tricolors to be from northerly nesting grounds to more southerly wintering grounds. This was the primary hypothesis in 1930 when the writer undertook investigations of blackbird depredations in the rice fields in the San Joaquin and Sacramento valleys. Although this thesis has proved fairly accurate for the latter valley, it has proved definitely inaccurate for the San Joaquin area, and the transfer within 90 days of populations from Los Baños to Willows complicates the problem of depredations in the Sacramento Valley.

Blackbird damage to rice and other grain crops in the area herein considered decreased after 1932 and since 1935 has been at a rather consistently low ebb. True there are each year instances of severe injury locally to various crops, usually small in extent, but there has been no large-scale attack over thousands of acres such as occurred in and prior to 1931.

Incomplete as it is, the information thus far developed by banding has furnished a working basis for interpretation of blackbird activity, and of the possible effect of the application of control operations if they should again become necessary. Already the banding data herein contained has been of practical use. Called to inspect certain areas of blackbird depredation on small acreages of crops located within the so-called delta area, and finding that the Tricolor was the species involved, the writer has, in several instances, convinced the grower that mere herding off by gunfire was the only practical method of crop protection because control by more aggressive methods would necessitate destruction of birds in great numbers from far distant counties and would entail expense not justified by the damage suffered.

The banding project has not continued long enough to determine longevity of the species. In table 2 is given the recovery of banded birds by seasons, showing that to date the oldest banded bird recovered was approximately six and one-half years of age; it was killed at Sacramento late in December 1939. Only those years are listed when some return records were received.

TABLE 2
Recovery of banded birds by years

		Number recovered									
Year	Number banded	1924	1927	1931	1932	1933	1934	1937	1938	1939	1940
1924	28	1	1								
1928	13				1						
1931	2153			7	2	1	3				
1932	1202				2	5					
1933	1400					4				1	
1937	2500							3	2		2
1938	7200								24	15	
1939	3600									13	3
1940	1000										2

Since in January of 1941 the writer was transferred to Denver, Colorado, far removed from the haunts of the Tricolored Red-wing, it is hoped that this paper may arouse interest among California banders to the end that banding activity may be continued and extended into other counties within the range of the species. By so doing a full understanding of the erratic migratory wanderings of this most interesting bird may eventually be possible.

SUMMARY

The Tricolored Red-wing (*Agelaius tricolor*) is a species of gregarious and erratic habits. In California, to which it is largely confined, it frequently causes serious damage to several crops such as rice, milo maize, and sunflower.

Between 1924 and 1940, 19,700 tricolors were banded by all cooperators, 16,300 of them under the writer's direct supervision. Since 1930 only nestlings have been banded; 730 birds banded prior to that date were of age unknown to the writer.

The 93 return records on file represent only 0.47 per cent of the birds banded. Many blackbirds killed by ranchers and others are never examined for bands.

Banding south of the Tehachapi Mountains has been so limited that only three returns are on file, and no theory as to movements there can be formulated.

A total of 14,910 nestlings has been banded in Merced County in the San Joaquin Valley in the course of five seasons, in marshes ranging from Snelling at the east to Los Baños on the west. Six hundred were banded in Kern County in 1939. Return records from these birds afford evidence that there is little southward movement after nesting is completed. Instead, the movement is northwestward toward the Sacramento-San Joaquin delta, thence either westward in the area contiguous to the bays and into the coastal farming areas or on northward into the center of the rice-growing counties of the Sacramento Valley.

From the 3345 nestlings banded at points from Sacramento to Willows, in the Sacramento Valley, only 19 bands were returned. These few returns indicate a southward movement to the delta region in winter.

The longest distance represented by any of the records is of a bird banded by T. T. McCabe and party near Willows in 1931 and killed seven months later at Sanger, Fresno County, 225 miles distant.

The oldest bird thus far recovered was six and one-half years of age.

Fish and Wildlife Service, Denver, Colorado, September 15, 1941.

ROBERT B. ROCKWELL: 1883-1941

By EDWARD R. WARREN

Probably a good many of the younger generation of Cooper Club members never heard of Robert Rockwell, but between 1907 and 1912 he was a frequent contributor to the *Condor* and he served as one of the Associate Editors from January of 1908 through 1911. Up to the beginning of his last illness he was active in natural history work, especially with birds.

Rockwell was born on June 19, 1883, in Grand Junction, Colorado, where his father was a cattleman. When he was about six years old, his life in Denver began, but only for the school months. His summers were spent on the ranch, where he could see and observe wildlife. It was here that he made the studies on "The Woodhouse Jay in Western Colorado," published in the *Condor* in 1907—his first published paper.

I became acquainted with Rockwell in the winter of 1906-1907, at meetings of the Colorado Biological Society. Our acquaintance soon ripened into an intimate friendship, and we always got together whenever I came to Denver from Colorado Springs.

Bob attended the University of Colorado at Boulder for a year, but the death of his father left the latter's financial affairs in such shape that the son felt it obligatory to give up college and seek employment, which he did with various real estate firms. He was successful in this work, and finally established his own business, the Rockwell Investment Company, of which he was the head at the time of his death.

In 1906 and 1907 the Colorado Museum of Natural History was making a good start. It had the building which is now the nucleus of the present group of buildings, and it exhibited several fine groups of animals. The collection of Edwin Carter of Breckenridge had been purchased. Rockwell gave many of his evenings to helping with this collection, and especially to arranging the notes pertaining to Carter's specimens, which had been kept in such a way as to make this a difficult task.

Beside giving a great deal of time to the Museum, Rockwell was in the field as much as possible, with some friend, and I suppose sometimes alone. In the spring of 1909 there came to the Museum, as taxidermist, a young man named Wetmore. He and Bob soon became fast friends and spent as much time together as possible, often out in the field. Wetmore was an ardent collector, even then with a good knowledge of birds. I suspect that my readers have guessed I refer to Dr. Alexander Wetmore, Assistant Secretary of the Smithsonian Institution, in charge of the National Museum, and especially an authority on fossil birds.

Rockwell was much interested in the eggs and nests of birds, and he acquired a considerable collection which he eventually sold to W. C. Bradbury for the Colorado Museum.

I think it must have been about 1910 that he became well acquainted with L. J. Hersey, who was then serving as curator of birds at the Museum. Hersey was a member of the Barr Lake Gun Club, which controlled some reservoirs several miles east of Denver. It was a famous place for ducks and other water birds. Rockwell made studies of various of the species of birds found there, and these studies finally resulted in the publication of the "Annotated List of the Birds of the Barr Lake District," in collaboration with Hersey.

I never pretended to keep track of all of Bob's activities. He used to tell me about what he was doing, but intervals between our meetings were often long. One great interest he had was duck hunting, and he was a member of the Mile High Duck Club



Fig. 16. Robert B. Rockwell: 1883-1941.

situated several miles east of Denver. Here he spent his spare time in the open season, and I suspect was often there at other times to study the birds frequenting the place.

On December 18, 1906, the Colorado Biological Society was organized, with Rockwell as one of the ten charter members. Early in 1907 Joseph Grinnell wrote to him for information regarding both the Society and the Colorado Museum. Rockwell's enthusiastic reply led to further correspondence and to his consenting to become an associate editor of the *Condor*. Until the increasing pressure of business forced his resignation, Rockwell contributed many well-illustrated articles to the *Condor* and interested other Colorado naturalists to contribute also.

In addition to the articles in the *Condor*, Rockwell contributed to the *Auk*, the *Oologist*, and the *Denver Sunday Post*. With Clark Blickensderfer, he published in *Natural History* (21, 1921:628-638) "Glimpses of the home life of the Saw-whet Owl,"

with eighteen fine photographs. We were associated in a couple of articles, one of which he wrote, both published in the *Journal of Animal Behavior* (2, 1912:218-221). They concerned the peculiar behavior of a striped ground squirrel. Rockwell told me about it and I urged him to write it up. In 1940 the Colorado Museum of Natural History published "The Birds of Denver and Mountain Parks," by Niedrach and Rockwell in collaboration. That was his last publication. He and Robert Niedrach, the curator of birds at the Museum, were very friendly, and often made Sunday trips for bird photography. I have omitted to mention that Rockwell, almost from the beginning of our friendship, very likely before, was an enthusiastic photographer, especially of nature subjects, as the many excellent pictures in his Condor papers attest. How much of this sort of work he did in the past few years I do not know.

In 1940 he was made a trustee of the Colorado Museum of Natural History, a well deserved recognition of his work for the Museum.

In the late spring or early summer of 1940 he was taken ill with heart trouble, but apparently recovered, and he returned to business. Later in the summer he was taken ill again and was obliged to stay in a hospital. Subsequently he was able to be removed to his home, where he passed away on the eleventh of August, 1941. Besides his widow he left a daughter and three sons.

His was a fine character and all his friends must miss him, but none, I think, more than I do.

TITLES OF ARTICLES BY ROBERT B[LANCHARD] ROCKWELL
APPEARING IN THE CONDOR

- The Woodhouse jay in western Colorado; 9, May, 1907:81-84, 1 ill.
Some Colorado notes on the Rocky Mountain screech owl; 9, September, 1907:140-145, 5 ills.
A new breeding bird for Colorado: the Cassin Sparrow (*Peucaea cassini*) nesting near Denver [L. J. Hersey and R. B. Rockwell]; 9, November, 1907:191-194, 2 ills.
Nesting of the western horned owl in Colorado; 10, January, 1908:14-17, 2 ills.
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The history of Colorado ornithology; 11, January, 1909:24-32, 2 ills.
Correction of errors; 11, 1909:33.
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The use of magpies' nests by other birds; 11, May, 1909:90-92, 1 ill.
Correspondence [on certain Colorado records]; 11, May, 1909:106.
An annotated list of the birds of Barr Lake district, Adams County, Colorado [L. J. Hersey and R. B. Rockwell]; 11, July, 1909:109-122, 6 ills.
[Review of] An annotated list of the birds of Boulder County, Colorado, by Junius Henderson; 11, July, 1909:144.
An albino magpie; 12, January, 1910:45, 1 ill.
Some Colorado night heron notes; 12, July, 1910:113-121, 9 ills.
Nesting of the gray-headed junco; 12, September, 1910:164-165, 1 ill.
Nesting notes on the American eared grebe and pied-billed grebe; 12, November, 1910:188-193, 5 ills.
Notes on the nesting of the Forster and black terns in Colorado; 13, March, 1911:57-63, 7 ills.
Nesting notes on the ducks of the Barr Lake region, Colorado. Part 1; 13, July, 1911:121-128, 4 ills.
Nesting notes on the ducks of the Barr Lake region, Colorado. Part 2; 13, November, 1911:186-195, 10 ills.
Notes on the wading birds of the Barr Lake region, Colorado; 14, July, 1912:117-131, 13 ills.

Colorado Springs, Colorado, January 9, 1942.

JUNE BIRD LIFE OF THE PAPAGO INDIAN RESERVATION, ARIZONA

By GEORGE MIKSCH SUTTON and ALLAN R. PHILLIPS

In June, 1940, the authors and Mr. Lyndon L. Hargrave made a ten-day ornithological survey of the Papago Indian Reservation, in southwestern Pima County, Arizona. Most writers on the faunal areas of southern Arizona have assigned this region to the "Western Desert Tract" (=Yuma Faunal Area); but Mearns (1896:137; and 1907:73-74 and map opp. p. 23), whose route followed the Mexican border across the entire Reservation, considered it part of his "Apache or Elevated Central Tract," an inclusion that appears to be justified.

Little has been written about the birds of the Papago. An important contribution is that of Monson (1936), whose report covers the period from September, 1934, to February, 1935. Other authors (Bruner, van Rossem, Phillips, *et al.*) have discussed winter and spring (to June) birds of the Baboquivari Mountains, whose crest bounds the Reservation on the southeast; and Brown (1885) and Scott (1886-1888) long ago reported on a few birds found by Brown at the old mining town of Quijotoa in winter and spring. Mearns collected within the area only in midwinter. It is thus apparent that the *breeding* birds of the area are virtually unknown.

In November, 1939, the Papago Council granted the junior author permission to pursue his studies and collect birds on the Reservation. Making preliminary trips with Monson to Menager's Dam and Baboquivari Camp in January and March of the following year, he planned the June investigations. The senior author went to Arizona by airplane, joining Phillips and Hargrave in Tucson. The three-man party traveled about the Reservation in Phillips' car. Their itinerary and camps are indicated on the accompanying map (fig. 17).

Except in the Baboquivari Mountains, pure Lower Sonoran Zone conditions were encountered. This zone obviously pervades nearly all the Reservation, and here consists of three principal associations: (1) Level areas, where creosote bush is dominant and bird life is scarce. (2) Hilly, gravelly country, where the dominant plants are palo verde and various cacti, including the saguaro or giant cactus and, on the rocky hills about Menager's Dam, the organ-pipe cactus; locally, in moister areas, ironwood (*Olneya tesota*) occurs. (3) Washes, along which there are fairly large leguminous trees (mesquite, palo verde, and ironwood), various sorts of brush, and desert hackberry. In this association the most varied bird life is to be found.

In the large wash nine miles by road north of Menager's Dam, the desert hackberry is unusually luxuriant. At the Dam there is an almost pure mesquite woodland, with trees (some of them dead) twenty feet high. At the time of the authors' visit, this woodland was very heavily grazed—more so than most of the Reservation—and the water was low, the five-acre pond being very muddy. On the dam itself was a weeping willow; the few other willows across the pond were apparently dead. Nowhere in the Reservation was a true willow-cottonwood association encountered, though some shade trees were noted about the agency at Sells.

At Ventana Ranch there is an extensive meadow of tobosa grass (*Hilaria mutica*). At either side, as the land rises gradually, the tobosa merges with creosote and mesquite, thins out, and disappears. Along the bottom, as at our camp eight miles by road south-southwest of the Ranch, it becomes patchy, the areas of tobosa being scattered among the mesquite and other brush.

At Baboquivari Camp there is heavy mixed brush (mesquite, catclaw, *Dodonaea viscosa*, *Anisicanthus Thurberi*, etc.), and along the creek bed some canyon hackberries

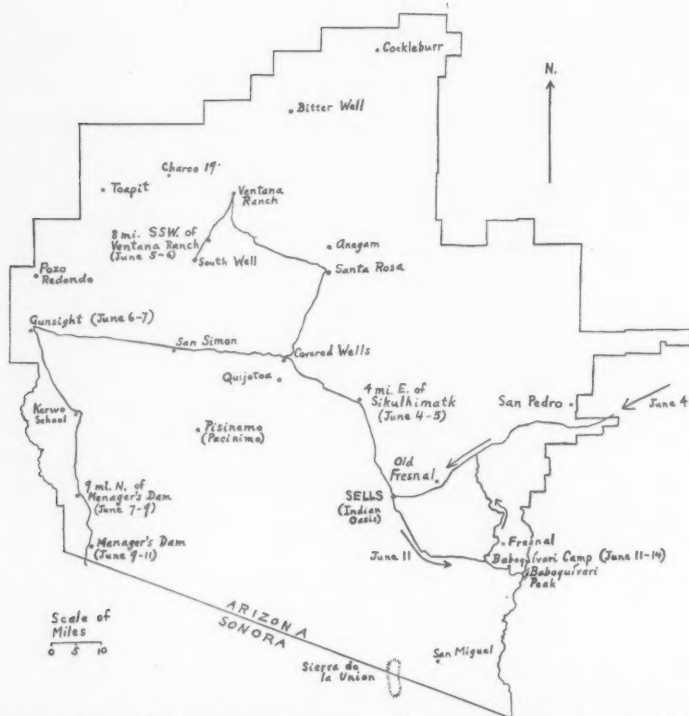


Fig. 17. Map of the Papago Indian Reservation, Arizona, showing route and overnight camps (dated) of the authors, and localities mentioned by previous writers.

and live oaks grow. A trail leads thence up through the live oak-shrubby monocot-grass belt to Baboquivari Peak. At the saddle just west of the Peak is a live oak-piñon-juniper-grass-*Agave* association. The junior author climbed to the base of the cliffs at the east end of this saddle, finding there a rather dense stand of mixed trees, including the New Mexican locust (*Robinia neomexicana*). Returning to the trail and following it part way up Baboquivari Peak, he discovered no further evidence of Transition Zone.

Only a small part of the Reservation is cultivated. At the village of Sikulhimath and above Menager's Dam there is considerable rainy-season dry farming by the Papagos, and Menager formerly irrigated a few fields below the dam. Considerable stands of *Amaranthus* grow along the larger washes above the dam in the summer rainy season, but by the following June these have largely been trampled down by livestock and only small patches remain. Beside the fields below the dam is a mixture of creosote, desert hackberry, mesquite, palo verde, and other shrubs with *Amaranthus* and annual grama grass.

The above description, it will be noted, differs from that of van Rossem (1936: 124-125) in certain particulars. Puzzled by our failure to find any "broad, level, grass plains," we inquired of Monson, whose personal knowledge of the Papago country is extensive, whether the area about San Miguel might differ markedly from anything we had visited. Monson replied that he considered the vegetation about San Miguel "much

the same as . . . at Sells" and described the Reservation as a whole as "similar to the general Tucson and Tucson Mountain area."

The Papago Reservation does differ from areas to the north and east in being more rolling and broken, especially in the section eastward from San Simon. The grass seen by van Rossem in late June, 1932, was probably an exceptionally luxuriant growth resulting from the unusually rainy summer of 1931 or the unseasonable rainfall of June 4, 1932, which may have extended this far southwest. Monson informs us that, according to his experience, the closest approach to perennial grass anywhere in the main body of the Reservation is an annual form of *Bouteloua Rothrockii* which, although distinctly subdominant, may sometimes present "the appearance of perennial grasses." He states further that "the only pure stand of grass is . . . at Ventana Ranch and along that wash to the northern boundary." This is, of course, *Hilaria*. As for mesquite, he states that aside from the copse at Menager's Dam, there are "no thickets . . . to compare with those along the Santa Cruz and San Pedro rivers." Acknowledging the tree to be common, he says it is "largely confined to the water-courses."

Along the Mexican boundary, Mearns (1907:116) found the "bushy or chaparral country" to extend from about 10 miles east of Pozo de Luis (which is 5 miles south of Border Monument 152) west to beyond Sonoyta, Sonora, thus including practically the entire Papago Reservation. His observations thus agree with Monson's and ours.

In southern Arizona the spring dry season ends in late June. In 1940, the first summer rains at Tucson fell on June 20. From June 7 on, therefore, hot, dry winds were a memorable feature of the midday hours.

The specimens taken are in the Louis Agassiz Fuertes Memorial Collection at Cornell University and in the personal collections of Phillips and Hargrave. The nomenclature employed in the following list of the 89 species recorded is chiefly that of the A.O.U. Check-list of North American Birds (1931). The authors received continual aid from Monson, and are also grateful for the assistance of Hargrave and of the authorities of the following institutions: United States Fish and Wildlife Service; University of Arizona; American Museum of Natural History; University of Michigan Museum of Zoology.

Cathartes aura. Turkey Vulture. Small numbers seen everywhere, even over the main ridges of the Baboquivaris.

Coragyps atratus. Black Vulture. Seen by Phillips as follows: 5 miles west of Sikulhimatk, two, June 5; 9 miles north of Menager's Dam, two, June 7, and one the next day; and at Menager's Dam, one, June 11. There are several other records in recent years, mostly from near Sells (Taylor and Vorhies, 1933; Chambers, 1934; Pierce, 1934; Monson, 1936).

Buteo borealis. Red-tailed Hawk. Scattered pairs and single birds seen all over the Reservation.

Buteo swainsoni. Swainson Hawk. Single birds seen June 6 at points 2 or 3 miles south of Ventana Ranch and 7.5 miles west of San Simon; also at Menager's Dam on June 9 and 11. All were in "normal" phase, the bird of June 9 being exceptionally pale.

Parabuteo unicinctus. Harris Hawk. Seen repeatedly, though in small numbers, in the hilly saguaro-palo verde country between Sells and San Simon. One seen on June 11 on a telephone pole 5 miles west of the base of the Baboquivari Mountains in a similar association. On June 5 a nest was found by Phillips on a high arm of a saguaro 2 miles west of Sikulhimatk. Three well-feathered young perched on or near the nest, and both parents were in attendance. This hawk is more common on the Papago Reservation than in most other parts of the southwest, having been noted here by Chambers and Robertson (1936) and by Monson (1936).

Aquila chrysaetos. Golden Eagle. Two to four seen on the evening of June 12 flying about Baboquivari Peak (Phillips).

Falco mexicanus. Prairie Falcon. One (or two) seen repeatedly at Menager's Dam, hunting Mourning Doves. On the evening of June 9 one was noted up to 7:50, when it was quite dark. At least two birds, probably young, were seen repeatedly about Baboquivari Peak on June 12 and 14. One also was seen about the cliffs back of Baboquivari Camp on June 13.

Falco sparverius sparverius. American Sparrow Hawk. Families, pairs, and single birds seen frequently in saguaro country. Female noted at base of Baboquivari Mountains, south of camp, June 14. Three males taken by Sutton, one as far west as Menager's Dam, cannot satisfactorily be distinguished from birds from the northeastern United States.

Lophortyx gambelii gambelii. Gambel Quail. Pairs and small coveys seen everywhere from Baboquivari Camp west. Especially abundant in the Menager's Dam region, where small young were seen repeatedly and where, under a weed-grown desert hackberry, Sutton found a nest with nine fresh eggs on June 9. No evidence of breeding was noted elsewhere.

Cyrtonyx montezumae. Mearns Quail. Two families of young about a third grown and well able to fly were seen by Sutton in a grassy canyon southwest of Baboquivari Peak on June 14.

Columba fasciata fasciata. Band-tailed Pigeon. Seven single birds and a flock of three were seen about the saddle just west of Baboquivari Peak on June 14. A male, secured by Sutton, had been eating green acorns.

Zenaidura macroura. Mourning Dove. Seen everywhere in fair numbers save in the Baboquivaris, where few were noted. Seen at the saddle just west of Baboquivari Peak on June 12 and 14. A hundred or more watered at Menager's Dam in the evenings. Nests with eggs were found between June 5 and 9.

Zenaida asiatica. White-winged Dove. Common throughout the lower country. Not seen at the saddle west of Baboquivari Peak, but heard calling in the canyons below. Eggs and small young found between June 5 and 8.

Columbigallina passerina pallescens. Mexican Ground Dove. One seen by Hargrave 0.6 mile east of Gunsight, June 7. Abundant at Menager's Dam, where eggs and young were found.

Coccyzus americanus. Yellow-billed Cuckoo. One passed south through camp 9 miles north of Menager's Dam, June 9. Two noted at the Dam, June 10. Though calling, they may have been transients.

Geococcyx californianus. Road-runner. Noted here and there throughout the Reservation east to Baboquivari Camp.

Otus asio gilmani. Saguaro Screech Owl. Male, female, and one fully fledged young taken from a family 9 miles north of Menager's Dam, June 7. A male collected by Sutton at Baboquivari Camp, June 12, is the first *Otus* actually to be taken in that range.

Bubo virginianus. Horned Owl. One or two noted at every lowland camp. One heard by Phillips near saddle west of Baboquivari Peak on evening of June 12. A young male taken June 11 near Baboquivari Camp was just out of the nest.

Micropallas whitneyi whitneyi. Whitney Elf Owl. One heard by Sutton in saguaros 5 miles west of Sikulhimatk in mid-morning, June 5. Several seen or heard nightly in the Menager's Dam region. Common at Baboquivari Camp. In view of the wide distribution of this owl and its occurrence on the east slope of the Quijotoa Mountains (Brown, 1885), it is puzzling that Miller (1929) did not find it at Covered Wells.

Phalaenoptilus nuttallii. Poor-will. Heard at every camp. Five heard and one young bird on the wing taken by Phillips near the saddle just west of Baboquivari Peak, June 12. Without *P. n. hueyi* or *P. n. "adustus"* at hand, we cannot assign our birds racially.

Chordeiles acutipennis texensis. Texas Nighthawk. Seen nearly everywhere, east to the valley below the Baboquivari Mountains. Not noted at or above Baboquivari Camp. In mid-morning on June 11 about fifty were seen hawking about over areas of dead mesquite at Menager's Dam.

Aëronautas saxatalis saxatalis. White-throated Swift. Several seen daily in the Baboquivari Mountains, including a flock of at least 15. Not noted anywhere farther west.

Calypte costae. Costa Hummingbird. Noted east of Gunsight, where young were caring for themselves on June 7; also seen in the Menager's Dam region and at Baboquivari Camp. On June 14 Sutton took a young bird at the saddle just west of Baboquivari Peak, and Phillips saw a female feeding a young one (which could fly well) farther down the trail. *Not a single adult male was seen on the entire trip.*

Cynanthus latirostris. Broad-billed Hummingbird. Several seen at and near Baboquivari Camp. Not nearly as common there as Monson and Phillips had found them to be on March 24, 1940. Single male seen by Sutton on June 14 a little below the saddle west of Baboquivari Peak. Adult males seen much more frequently than females.

Colaptes chrysoides. Gilded Flicker. Seen in small numbers wherever saguaros grew. Seen or heard twice at Baboquivari Camp. A reddish flicker was seen west of Covered Wells on June 6, and another at Menager's Dam on June 9, but neither was collected.

Centurus uropygialis uropygialis. Gila Woodpecker. Noted regularly in or near the saguaro association. One seen at Baboquivari Camp.

Balanosphyra formicivora. Acorn-storing Woodpecker. One seen by Phillips among the oaks near the saddle just west of Baboquivari Peak on June 12.

Dryobates scalaris cactophilus. Cactus Woodpecker. Seen everywhere in lower country. A few noted also in the oak belt of the Baboquivari Mountains.

Dryobates arizonae arizonae. Arizona Woodpecker. One seen on Baboquivari Peak and one taken at the saddle just to the west on June 14.

Tyrannus verticalis. Arkansas Kingbird. Two seen at Sells (where there are shade trees) on June 11.

Tyrannus vociferans. Cassin Kingbird. Several seen at and above Baboquivari Camp. Nests were found at Baboquivari Camp and in Moristo Canyon.

Myiarchus tyrannulus magister. Arizona Crested Flycatcher. Noted at every Lower Sonoran camp and along the highways. A few pairs were encountered a little above Baboquivari Camp, in Moristo Canyon.

Myiarchus cinerascens cinerascens. Ash-throated Flycatcher. A few seen nearly everywhere; occurred up to the saddle just west of Baboquivari Peak. Common at Gunsight and Baboquivari Camp. Very common at Menager's Dam, where young, both in the nest and on the wing, were seen on June 10.

Sayornis saya. Say Phoebe. Male in poor plumage taken by Phillips just east of Gunsight, June 7. One heard at the ruins of Menager's house below the Dam, June 9. Family group seen about Baboquivari Camp, and one bird on the trail above.

Empidonax traillii brewsteri. Western Traill Flycatcher. Traill Flycatchers were noted in some numbers in the lower parts of the Reservation, as follows: two at large wash $1\frac{1}{2}$ miles west of Santa Rosa, June 5; one in scattered low bushes at edge of tobosa meadow 1 mile south of Ventana Ranch, and one at small wash 5 miles south of Santa Rosa, June 6; one at large wash east of Gunsight, June 7; five at large wash 9 miles north of Menager's Dam, June 7-8; and fifteen to eighteen at Menager's Dam, where six were seen as late as June 11. Eleven specimens taken. The birds were obviously not breeding. They were entirely silent except for an occasional *whit*, and their gonads were not greatly enlarged. Most of the specimens were females, as might be expected of late transients. The presence of this species in northwestern Mexico and southern Arizona from June 1 to 9 can hardly be considered sufficient evidence of its breeding (see Moore, 1940:352).

Empidonax difficilis difficilis. Western Flycatcher. This species, also, was migrating in considerable numbers. It was encountered only where shade was dense. Five were seen, June 7-8, nine miles north of Menager's Dam. Six or seven were recorded about Menager's Dam, June 10-11. On June 13 two empidonaces were seen in Moristo Canyon, above Baboquivari Camp. One of these, on collection, proved to be *E. difficilis*. This species, like the last, was obviously not breeding, nor can its presence in northwestern Mexico and southern Arizona from May 31 to June 23 be considered valid evidence of breeding (Moore, 1940:368-371). The spring migration is very protracted. The species has been taken on the Papago Reservation from March 24 (Monson and Phillips, 1941) to June 20 (Moore).

The two males and four females taken in the Menager's Dam region, June 7-10, are all referable to the Pacific Coast race, *difficilis*. The female taken by Sutton in Moristo Canyon, June 13, while probably bound for the same district, has a very long tail (60 mm.), so cannot be safely referred to that race; the wing is 63 mm.

Myiochanes richardsonii richardsonii. Western Wood Pewee. Not as common as the two empidonaces. Definitely recorded as follows: one taken by Hargrave 9 miles north of Menager's Dam, June 7; four seen about the Dam, June 9-11; one seen by Phillips near the saddle just west of Baboquivari Peak, June 12. Possibly this last was a breeding bird, but the rest were surely transients.

Nuttallornis borealis. Olive-sided Flycatcher. Transient female taken by Sutton at the saddle just west of Baboquivari Peak on June 14. The bird was fat and the ovary but slightly enlarged.

Pyrocephalus rubinus mexicanus. Vermilion Flycatcher. Abundant at Menager's Dam, where several full-fledged young were seen. One pair noted at Baboquivari Camp, June 12-13. If *P. r. flammeus* is a valid race, it is evidently on the basis of slightly browner (less gray) upperparts and (in females) breast-streaks, rather than of paler back. We have not seen fresh fall specimens.

Campostoma imberbe. Beardless Flycatcher. Breeding male noted at Baboquivari Camp on June 12 and 13; bird taken on latter date. Previously reported from both Fresnal (Vorhies, Jenks, and Phillips, 1935; van Rossem, 1936) and Baboquivari Camp (Monson and Phillips, 1941).

Otocoris alpestris adusta. Scorched Horned Lark. Noted only in bare spots in the tobosa meadow 1 mile south of Ventana Ranch, where six or seven birds were seen and three males and a female were taken on June 6. Three of these specimens were still practically in breeding condition. The specimens are mostly dilute and *aphrasta*-like, but are clearly best referable to *adusta*. They are not *leucansiptila*, with which they have been compared.

Progne subis hesperia. Western Martin. Pairs and small colonies seen repeatedly about the saguaro, north to 4 miles south of Santa Rosa, west to Gunsight, Kerwo, and the Menager's Dam region, and east to 7 miles west of the base of the Baboquivari Mountains. At Menager's Dam they were heard flying overhead at about 4:00 a.m. on June 11.

Aphelocoma californica woodhouseii. Woodhouse Jay. A few noted at Baboquivari Camp, Baboquivari Peak, and along the saddle just to the west.

Aphelocoma sieberii arizonae. Arizona Jay. A few small flocks seen about the saddle just west of Baboquivari Peak.

Corvus corax sinuatus. American Raven. Singles and pairs seen regularly in the Menager's Dam region, where a badly worn specimen was taken; noted also at Baboquivari Camp and near the saddle just west of Baboquivari Peak.

Corvus cryptoleucus. White-necked Raven. A few seen daily in the main reservation, but none in the Baboquivari Mountains. Noted north to 8 miles south-southwest of Ventana Ranch, west to Gunsight and the Menager's Dam region, and east to 2 miles south of Topawa. The only specimen secured was a female taken 2 miles west of San Simon, on June 6 (Sutton).

Baeolophus wollweberi annexus. Bridled Titmouse. Noted near the mouth of Moristo Canyon and along the saddle just west of Baboquivari Peak, June 12-14.

Auriparus flaviceps. Verdin. Family groups seen nearly everywhere. Common in the larger washes. Noted even in the lower part of the oak belt on the trail to Baboquivari Peak. Specimens secured on our trip are not adequate for racial identification, but two others taken at Menager's Dam on January 7, 1940 (Monson and Phillips), are of the usual southeastern Arizona type, that is intergrades, perhaps nearest *ornatus*.

Psaltiriparus minimus. Bush-Tit. Several family groups noted along the saddle just west of Baboquivari Peak on June 14.

Thryomanes bewickii eremophilus. Desert Bewick Wren. Two seen at Baboquivari Camp. Fairly common about Baboquivari Peak and in the saddle just to the west.

Heleodytes brunneicapillus conesi. Northern Cactus Wren. A few noted at nearly every camp and occasionally en route. Commonest about Menager's Dam and in the lower Baboquivari Mountains, where the species was not observed above the lower part of the oak belt.

Ca'herpes mexicanus conspersus. Canyon Wren. Several families seen among the rocky hills around Menager's Dam. Fairly common in the Baboquivari Mountains; specimens taken.

Salpinctes obsoletus obsoletus. Common Rock Wren. One heard in Moristo Canyon. One taken and a family of about 10 seen well up along the trail to the saddle just west of Baboquivari Peak. It was a surprise not to find this species anywhere west of the Baboquivari Mountains.

Mimus polyglottos. Mockingbird. Noted but once during the entire trip: a single bird seen by Phillips near Fresnal Experiment Station at the west base of the Baboquivari Mountains on June 14.

Toxostoma bendirei. Bendire Thrasher. Single birds and family groups seen at Sikulhimatk, Gunsight, Kerwo, and around Menager's Dam. Commonest in open low brush beside fields, especially below Menager's Dam.

Toxostoma curvirostre palmeri. Palmer Thrasher. Seen nearly everywhere, from around Menager's Dam and Gunsight to the lower slopes of the Baboquivari Mountains, and north at least to 4 miles south of Santa Rosa. On June 5, 2 miles west of Sikulhimatk, an adult was twice seen to fly a considerable distance over the same route with food in its bill. The feeding area was evidently more than 75 yards from the nest.

Toxostoma lecontei lecontei. LeConte Thrasher. Noted only in the valley between Ventana Ranch and Santa Rosa, where three were seen and an adult male and young female taken on June 6.

Toxostoma dorsale dorsale. Crissal Thrasher. Noted at all the washes that we visited in which there was heavy vegetation. Not seen above the lower parts of the Baboquivari Mountains.

Poliophtila caerulea. Blue-gray Gnatcatcher. Fairly common from Baboquivari Camp up to the peak itself.

Poliophtila melanura melanura. Plumbeous Gnatcatcher. Small numbers seen nearly everywhere. Abundant at Gunsight, where about sixty young and old birds were seen along 3 miles of a large wash. Least common in the Baboquivari Mountains, where, on the lower slopes, Sutton observed a pair feeding a young Dwarf Cowbird.

Phainopepla nitens. Phainopepla. Two families (or more) seen near Menager's Dam. Noted otherwise only three times: one 8 miles south-southwest of Ventana Ranch, June 6; one 1 mile south of Kerwo, June 11; and one north of Fresnal Experiment Station, June 14.

Lanius ludovicianus. Loggerhead Shrike. Several seen about Menager's Dam, and a few single birds and pairs noted elsewhere over the reservation east to near Fresnal Experiment Station. Not nearly as abundant, however, as Monson and Phillips had found them to be in January, 1940.

Vireo bellii arizonae. Arizona Vireo. Several noted at every brushy wash we visited except that at Gunsight. Occasional single birds seen or heard in more open desert. Encountered in Moristo Canyon above Baboquivari Camp.

Vermivora luciae. Lucy Warbler. Noted in a number of washes. Common at Gunsight, Menager's Dam, and above Baboquivari Camp. Many young were fully grown by June 11.

Dendroica aestiva aestiva. Eastern Yellow Warbler. A badly worn female was taken from the willow at Menager's Dam on June 9. The supposed Rocky Mountain race, *morcomi*, does not appear to us to be adequately differentiated.

Dendroica nigrescens. Black-throated Gray Warbler. A pair seen by Phillips below the cliffs east of the saddle just west of Baboquivari Peak on June 14, and the female taken. Previously known from this range only as a transient and winter resident. The birds had food in their bills and were obviously breeding.

Geothlypis trichas. Yellow-throat. A very tame and dull female (probably sick) was seen in a flower garden at Kerwo School on June 7. It was almost caught by hand. The absence of *G. t. chryseola*, or of other birds whose *habitat* is absent from the Papago Reservation, does not appear to be of faunal significance.

Setophaga picta. Painted Redstart. A few heard and glimpsed by Phillips near Baboquivari Peak, above the saddle, on June 14.

Passer domesticus. English Sparrow. Several seen at Ventana Ranch, Santa Rosa, and Sells.

Icterus cucullatus nelsoni. Arizona Hooded Oriole. Noted at almost every little wash. Several pairs seen in larger washes around Menager's Dam and in Moristo Canyon. Nests under construction were found on June 5 and 13.

Icterus parisorum. Scott Oriole. Pair seen and female taken at Gunsight on June 7. Several pairs seen (male in full juvenal plumage taken on June 14) from above Baboquivari Camp up to near the saddle just west of the peak.

Icterus bullockii. Bullock Oriole. Only one certain record: one or two seen at Menager's Dam, June 10 (Phillips).

Molothrus ater obscurus. Dwarf Cowbird. Seen almost everywhere; occurred up to the saddle just west of Baboquivari Peak, where Sutton saw a male on June 14. Most common along the larger washes at Gunsight and north of Menager's Dam. Flocks seen about buildings at South Well and San Simon.

Tangavius aeneus milleri. Bronzed Cowbird. Noted repeatedly in the vicinity of Menager's Dam, where the Hooded Orioles were kept busy driving them away. Single males seen at San Simon and Sells on June 11.

Piranga ludoviciana. Western Tanager. Certainly identified only near the saddle just west of Baboquivari Peak, where two were seen on June 14. Whether these were breeding birds or late transients is uncertain.

Piranga flava hepatica. Hepatic Tanager. Noted several times in lower part of oak belt above Baboquivari Camp. Male parent and nest taken. This nest was about 12 feet up in an Emory oak. On June 14 the three young flew from it at the report of a gun near by. Not previously recorded as far west as the Baboquivari Mountains.

Piranga rubra. Summer Tanager. A singing, parti-colored male passed through Baboquivari Camp on June 13.

Richmondia cardinalis superba. Arizona Cardinal. Definite records: a pair at large wash 1½ miles west of Santa Rosa, June 5; about twenty, 9 miles north of Menager's Dam, June 7-8; two or three pairs at and south of the Dam, June 9-10; seven pairs from Baboquivari Camp up Moristo Canyon, June 11-14. Also reported by the caretaker at Ventana Ranch, although we saw none there ourselves. Young in and out of the nest were seen from June 8 to 12.

Pyrrhuloxia sinuata sinuata. Arizona Pyrrhuloxia. Noted as follows: a pair 8 miles south-southwest of Ventana Ranch, June 5-6; a pair and a male at a small wash 5 miles south of Santa Rosa, June 6; at least three east of Gunsight, June 7; about six pairs seen 9 miles north of Menager's Dam, June 7-9 (eggs just hatching June 7); about five in brush beside fields below the Dam, June 9; and about five pairs at the Dam, June 9-11. Also reported by the caretaker at Ventana Ranch, where we did not see any.

Hedymeles melanocephalus. Black-headed Grosbeak. One heard singing 8 miles south-southwest of Ventana Ranch, June 6. Male seen by Sutton at small wash 1 mile south of Menager's Dam, June 9. Male seen by Phillips above the saddle just west of Baboquivari Peak, June 14. The last mentioned had food in its bill and so may have been breeding; the others were late transients.

Guiraca caerulea interfusa. Western Blue Grosbeak. Female seen and singing male taken on June 10 at Menager's Dam.

Passerina versicolor pulchra. Beautiful Bunting. Found near Baboquivari Camp, as already reported (Sutton, Phillips, and Hargrave, 1941).

Carpodacus mexicanus frontalis. Common House Finch. Seen in moderate numbers nearly everywhere; occurred up to the saddle just west of Baboquivari Peak. Fairly common at Menager's Dam.

Spinus psaltria hesperophilus. Green-backed Goldfinch. Female taken at Menager's Dam, June 11.

Pipilo maculatus montanus. Spotted Towhee. Three or four heard (breeding male taken) by Phillips at and above the saddle just west of Baboquivari Peak on June 12 and 14. Previously known only as a winter resident in this range.

Pipilo fuscus mesoleucus. Canyon Towhee. Singles, pairs, and families seen every day at points from 8 miles south-southwest of Ventana Ranch, Gunsight, and the Menager's Dam region east to near the saddle just west of Baboquivari Peak. Large young were seen several times. A nest with three eggs was found on June 8 north of Menager's Dam.

Aimophila carpalis. Rufous-winged Sparrow. About thirteen heard singing and others seen (two taken) 8 miles south-southwest of Ventana Ranch, June 5-6; two seen (one taken) in brush near fields 1 mile south of Menager's Dam, June 9; and at least six seen (5 singing; 2 taken) at two spots near the Dam, June 9-10. The birds were molting, and the testes, though large, were not of maximum size. No evidence of their breeding was obtained. Although not noted farther east on our trip, the species has been reported from Sells (Dawson, 1921), Fresno (Moore, 1932), and Baboquivari Camp (Monson and Phillips, 1941).

Aimophila ruficeps scottii. Scott Sparrow. Common about the saddle just west of Baboquivari Peak, where Sutton found a nest and three well-incubated eggs on June 14; the nest was lined with deer hair. Less common on the slopes east of and above Baboquivari Camp.

Amphispiza bilineata deserticola. Desert Sparrow. Noted sparingly at various points throughout the reservation, except south of Kerwo in the Menager's Dam region. A few seen about Baboquivari Camp, where a female in full juvenal plumage was taken on June 12. Nest and three slightly incubated eggs found June 6 near Ventana Ranch.

RÉSUMÉ

A survey of the breeding birds of the Papago Indian Reservation in central southern Arizona shows its faunal affinities to lie with the areas farther east rather than with the Yuma Faunal Area, just as Mearns years ago stated. This assignment is based on the occurrence across the Reservation of the following birds: Black Vulture, Swainson Hawk, Arizona Crested Flycatcher, Scorched Horned Lark, Western Martin, White-necked Raven, Bendire and Palmer thrashers, Scott Oriole, Bronzed Cowbird, Arizona Cardinal, Arizona Pyrrhuloxia, Canyon Towhee, and Rufous-winged Sparrow. None of these is known to range regularly to the lower Colorado Valley. The assignment is based also on the absence of LeConte Thrasher, which was detected in only one valley. This valley was not investigated, and it may be faunally different from the rest of the reservation.

Birds whose absence as breeders from the western part of the Reservation is worthy of note are the Golden Eagle, White-throated Swift, Beardless Flycatcher, Rock Wren, and Mockingbird. Some of these are probably indicators of faunal (rather than merely associational) differences between the main reservation and the valleys farther east, but further study is required to settle these questions. The status of the Costa Hummingbird in southern Arizona also requires elucidation before its faunal significance can be appraised.

Three birds detected across the whole of the reservation, but much scarcer in the western part than might have been expected, were: Say Phoebe, Phainopepla, and Shrike. Scarcity of the first two of these might possibly have resulted from a post-breeding migration to other localities or associations.

A fact strikingly brought out was that considerable migration was still in progress during the second week in June. From June 7 to 14, migration was detected definitely in two species of *Empidonax*, the Western Wood Pewee, Olive-sided Flycatcher, Yellow Warbler, Yellow-throat, and Black-headed Grosbeak; and a few individuals of other species possibly also were transients.

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Cornell University, Ithaca, New York, November 13, 1941.

FOOD AND HABITAT OF THE SPOTTED OWL

By JOE T. MARSHALL, JR.

The following lists of animals eaten by the Spotted Owl (*Strix occidentalis*), although based on stomach contents of only five birds and about 23 pellets, suffice to demonstrate the great variety of food items taken by this species. Heretofore relatively little has been known of the food habits of this owl. Two of the birds, belonging to the race *occidentalis*, I took in the Sierra Nevada of California. The other three, typical of the dark brown race *caurina*, were taken on the west slope of the Cascade Mountains in central Oregon, one by Dr. Alden H. Miller and two by myself. They are the first specimens of this species recorded from the northern Cascades of Oregon.

The pellets were picked up under roosting trees in a small ravine, densely wooded with incense cedar, white fir and big tree, at Whitaker's Forest, Tulare County, in the Sierra Nevada. I have seen a pair of Spotted Owls roosting in the daytime in this ravine at every visit to Whitaker's Forest since 1935 (summers of 1935, 1938, and 1940).

STOMACH CONTENTS

Mus. Vert. Zool. no. 74640, ♂, taken from grove of yellow pines at Whitaker's Forest, 5500 feet, west slope Redwood Mountain, Tulare County, California; 10:00 p.m., May 31, 1938 (contents identified by A. L. Nelson):

- 3 bats, *Myotis*
- 1 deer mouse, *Peromyscus*

Mus. Vert. Zool. no. 79355, ♂, from dense stand of yellow pines at Meadows Flat, 5000 feet, west slope Redwood Mountain, Tulare County, California; 10:00 p.m., June 5, 1940:

- 1 long-eared bat, *Myotis evotis*
- 4 crickets, probably *Gryllus*

Mus. Vert. Zool. no. 83379, ♂, from a ravine wooded with coast hemlock, North Santiam River, 3400 feet, Linn County, Oregon; 9:00 p.m., June 9, 1941:

- 4 crickets, *Cyphoderris monstrosa* (identified by Ashley B. Gurney)

Mus. Vert. Zool. no. 83380, ♂, same locality as no. 83379, taken in coast hemlocks; 11:00 a.m., June 10, 1941:

- 1 flying squirrel, *Glaucomys sabrinus*
- 1 jumping mouse, *Zapus trinotatus*
- several limb bones of frog or toad
- 5 crickets, *Cyphoderris monstrosa*

Mus. Vert. Zool. no. 83381, ♀, same place as above; noon, June 11, 1941:

- 18 crickets, *Cyphoderris monstrosa*

PELLETS

- 1 mole, *Scapanus latimanus*
- 1 shrew, *Sorex*
- 1 little California bat, *Myotis californicus*
- 1 hoary bat, *Lasiurus cinereus*
- 11 flying squirrels, *Glaucomys sabrinus* (in all the pellets but two)
- 2 deer mice, *Peromyscus*
- 1 Screech Owl, *Otus asio*
- 1 Saw-whet Owl, *Cryptoglaux acadica*
- 1 Steller Jay, *Cyanocitta stelleri*
- 1 Red-breasted Nuthatch, *Sitta canadensis*
- 1 Evening Grosbeak, *Hesperiphona vespertina*
- at least one other small passerine
- 1 June beetle, *Pleocoma hoppingi* (identified by E. Gorton Linsley)

The cricket *Cyphoderris*, a nocturnal relative of the Mormon cricket, not only made up much of the food of Spotted Owls on the west slope of the Cascade Mountains, but

was virtually the exclusive prey of the four other species of owl taken on the eastern slope (4 mi. N and 9 mi. W Sisters, 4000 ft., Deschutes Co., Ore.) by Dr. Miller, Ward C. Russell, and myself between June 12 and 15, 1941. The stomachs of three Screech Owls, four of the five Flammulated Screech Owls taken (also the first record for the Cascades), one Great Horned Owl, and one Pigmy Owl were crammed with them. *Cyphoderris* was conspicuously abundant in both localities, singing at night from the lowest foliage of coast hemlocks on the west slope, and from manzanitas and thickets of young firs in the yellow pine forest of the east slope.

I concede my inferiority as an owl hunter to the Whitaker's Forest Spotted Owls, which have furnished us with the first record of the Saw-whet Owl and the third record of the Screech Owl (above 5000 feet) in the Redwood Mountain area. Dawson (Birds Calif., 3, 1923:1096) mentions that Pigmy Owls are also taken. The diurnal birds were apparently captured from their roosts at night, as the Red-breasted Nuthatch was in the same pellet as the June beetle (*Pleocoma*), a nocturnal species, and the other passerine remains were mingled with bones and fur of flying squirrels.

Concerning the capture of bats, it is possible that the Spotted Owl is a sufficiently agile flier to take bats on the wing, at least the slow-flying *Lasiurus cinereus* which hovers about the outer foliage of trees.

The variety of animals eaten by the Spotted Owl parallels that listed by Bent (U. S. Nat. Mus. Bull. 170, 1938:189) for the Barred Owl. Apparently the most available food in a given locality at a given time of year is utilized, and one cannot account for the limited distribution of the Spotted Owl by its dependence on some particular kind of food. Moreover, its range does not coincide with that of any animal upon which it preys extensively. I have not been able to "call up" Spotted Owls in red fir and lodgepole pine timber at Big Meadow, Tulare County, where flying squirrels are just as abundant as at Whitaker's Forest. Similarly, none was found on the east slope of the Cascades, where *Cyphoderris* was common.

The five pairs of Spotted Owls which I have observed in the Sierras and Cascades were found in deep conifer woods, where shaded ravines are available for daytime roosts. Apparently the density and height of the timber is developed to Spotted Owl requirements only in the Transition Zone in these ranges, because I have never succeeded in "calling up" the birds in the Canadian Zone, where, due to montane conditions, the woods are seldom as "deep" as in the lower zone. Where such suitable habitat prevails, pairs can be expected at intervals of one to two miles, and their hunting territories cover roughly two square miles. It is possible that the absence of Great Horned Owls from an area of heavy timber may favor the occurrence there of Spotted Owls, for I have never found the two species together.

In conclusion, it appears that preference for a certain type of forest, not food requirements, accounts for the restricted occurrence of Spotted Owls.

Museum of Vertebrate Zoology, Berkeley, California, December 19, 1941.

OCCURRENCE AND NESTING OF SOME BIRDS IN THE SAN FRANCISCO BAY REGION

By MILTON L. SEIBERT

In the past few years, while watching birds in the San Francisco Bay region, I have made the following observations which appear to be worthy of record. Some of the reports relate to peculiarities of behavior whereas others establish new localities of nesting, especially on the east side of the Bay. No extensive search of literature concerning the species mentioned here has been made but all of the records appear to represent additions to information contained in Grinnell and Wythe's "Directory to the Bird-life of the San Francisco Bay Region" (Pac. Coast Avif. No. 18, 1927).

Falco sparverius. Sparrow Hawk. Although the winter of 1940-1941 was abnormally wet in the vicinity of San Francisco Bay, a pair of Sparrow Hawks that have been nesting in a bird house in my yard for several years had a complete set of four eggs on March 21, 1941. This early nesting was due, I believe, to a short interval of sunny weather that increased nesting activity. The eggs had all hatched by April 17, and by May 15, the four young, all females, began to leave the nesting box that is placed 25 feet up in an eucalyptus tree. After the young had left the box and were still being fed, I noticed much sexual activity on the part of the parent birds. I was surprised to find a second set of four eggs in the box on June 5. Other than striking the writer on the head while he was making observations at the nest, the female took no further interest in the box after the eggs had been laid and it was assumed she had deserted. The eggs were collected by H. W. Carriger on June 9, 1941, under protest from the male bird who alone remained to defend the eggs even after his mate had left the vicinity. The locality is near Mills College in east Oakland, Alameda County.

Cryptoglaux acadica. Saw-whet Owl. A much decayed owl of this species was found beside a trail in Redwood Regional Park, Contra Costa County, about one-quarter of a mile northeast of Redwood Peak on June 16, 1940.

Megaceryle alcyon. Belted Kingfisher. In 1939, a pair of kingfishers nested in a sandy bank along the lower Arroyo Mocho near Livermore, Alameda County. The seven young were banded May 7, and May 13, 1939.

Progne subis. Purple Martin. A set of five eggs of the Purple Martin was taken by H. W. Carriger in company with the writer and Leroy Jensen, June 12, 1938, near Cedar Mountain, 15 miles southeast of Livermore, Alameda County, at a spot 2600 feet above sea level. The nesting cavity, an old woodpecker drilling, was situated about 30 feet up in a partially dead valley oak. The material on which the five white eggs rested was composed of digger pine needles and green blue-oak leaves. Digger pines, blue oaks and valley oaks are the common trees on the slopes of the hills where the martins were found. The Purple Martin is probably a regular summer visitant in limited numbers in certain sections of the Mount Hamilton range. A flock of six birds in company with several Violet-green Swallows was observed alighting and picking something from the light-colored soil on the side of a steep bank in southeastern Alameda County on June 29, 1941.

Mimus polyglottos. Mockingbird. Although not uncommon in parts of east Oakland in the winter, I had never known this species to nest here. However, in May of 1940, Miss Inez Meader, a teacher at Maxwell Park School in Oakland, informed me that a pair of mockingbirds had a nest in a backyard near Monticello and Virginia avenues. On May 15, 1940, I went to that address and saw the parent mockingbirds feeding young that had very recently left the nest. The nest was situated about six feet from the ground in the center of a small quince tree. One of the young in an early attempt to leave the nest had fallen to the ground below where it died.

Hylocichla guttata. Hermit Thrush. That the Hermit Thrush occurs in a small area in the Redwood growth of the Oakland hills during summer was brought to my attention by Leroy Jensen, who first heard singing males there in July, 1937. From 1938 until the middle of 1941 the attempts of H. W. Carriger and myself to find this species nesting had met with failure. The song of the male birds was the only evidence of the species being in the vicinity. No young were seen and we could not honestly identify any of the adults as females. Only a couple of questionable old nests were brought forth by our diligent searches which extended over many hours in all types of weather. Many times we convinced ourselves that the birds were not nesting, but there was still a slight element of doubt in our minds. June 1, 1941, proved to be a lucky day, for I discovered a pair feeding three young in a nest that was placed 30 inches from the ground in a huckleberry bush. The three young were

banded and one of them photographed. The site of the nest was about 950 feet in elevation and 50 feet up on a slope from a trail that parallels one of the tributaries of Redwood Creek. The site is located in Redwood Regional Park, Contra Costa County, almost a half-mile east from the nearest point on the Alameda County line and not quite one-quarter of a mile northeast of Redwood Peak. The region where the thrushes were discovered is thickly covered with a mature second-growth redwood forest that covers small but steep side canyons and ridges. Other trees and shrubs associated with the redwood in the region are madrone, California laurel, coast live oak, dwarf alder, huckleberry and wild blackberry. The largest number of males heard singing at one time on their breeding grounds was three, although it is quite possible there were several more in the region. Because no



Fig. 18. Young Hermit Thrush, photographed June 1, 1941, in Redwood Regional Park, Contra Costa County, California.

specimens have been collected, the subspecific status of the birds has not been disclosed but presumably it is *slevinti*, the coastal form, as the area falls within the general breeding range of that race. Hermit Thrushes may also occur in summer within Alameda County, about three-quarters of a mile southeast of Redwood Peak near where the Contra Costa County line crosses Redwood Creek, but this has not been definitely determined.

Sialia mexicana. Mexican Bluebird. Once fairly common in winter around the writer's home, the Mexican Bluebird in recent years has become rather rare. The last appearance of this bird in my yard was in November, 1939. Formerly it nested in bird houses in the neighborhood over a period of several consecutive summers. In 1934, a pair reared two broods in the bird boxes at my home. The second brood left the nest box on July 7, 1934. I observed that some individuals of the first brood were assisting the parents in feeding the second brood during the period the second brood remained in the nest. A young bird, probably of the second brood, was found dead in the street in front of my home and was sent to the Museum of Vertebrate Zoology in August of 1934.

Poliophtila caerulea. Gnatcatcher. On December 24, 1938, while taking a Christmas census for Bird-Lore in the Oakland hills near Mills College, our party discovered four individuals of this species feeding in some baccharis bushes. These were the first I had seen in Oakland. Since that time we have observed at least one on each ensuing census. Although more common in winter, I have also noted gnatcatchers in spring and summer in the Oakland Hills. One was heard in Leona Heights on April 20, 1941, and one was seen in the same region on June 28, 1941. Another was heard just west of Redwood Regional Park on June 23 and 24, 1940. One was noted flying over my yard on September 8, 1939. It would appear from the record made on June 28 that the species might be nesting somewhere in the live oaks and brush back of Mills College. The point nearest to Oakland at which I have observed a nest of this bird is on Las Trampas Ridge, Contra Costa County, where one was found on May 10, 1941.

Dendroica auduboni. Audubon Warbler. The appearance of Audubon Warblers in the vicinity

of Sequoia Park in the hills of east Oakland in late spring was first noted by H. W. Carriger in 1940. Several trips were made to the area just west of Sequoia Park in June of that year by the writer and Mr. Carriger, but although two singing males and a female were observed, attempts to discover indications of nesting were not successful. Again in the spring of 1941, Mr. Carriger noted several singing



Fig. 19. Locality in Sequoia Park, Oakland, California, where Audubon Warblers were found feeding young on June 1, 1941.

males in Sequoia Park. It was not until June 1, 1941, when I found a pair feeding young, that definite signs of nesting were disclosed. The parents were feeding two bob-tailed young that had recently left the nest and were not yet able to follow the old birds around for food. The old birds were observed at close range as they dropped down close to the ground to hunt insects in the brush. The place where the young birds were noted is adjacent to Skyline Boulevard at the northern boundary of Sequoia Park, 1450 feet in elevation, and one-quarter of a mile west of the Contra Costa County line, in



Fig. 20. Fan palm in Dimond Park, Oakland, in which Hooded Orioles nested in June, 1941.

Alameda County. The immediate area in which the birds were found is covered with Monterey pine and Monterey cypress, of which the former seems to be the favorite tree for foraging and probably for nesting.

Dendroica nigrescens. Black-throated Gray Warbler. Throughout the spring and summer of 1938 and 1939 several individuals were noted in a limited area along the upper Arroyo Mocho near Cedar Mountain, Alameda County, where they frequented the digger pines and oaks along the stream. Greater abundance of individuals in the spring undoubtedly indicates migrants passing through the region. At least two, and probably more, remained through the months of May and June in 1938, and May in 1939. Although males were singing and at times pairs were present, no further indications of nesting were found. It is quite possible that at least one pair bred in that region in the summer of 1938 and 1939. No birds at all were observed in 1940 or 1941.

Icterus cucullatus. Hooded Oriole. On June 22, 1941, Brighton C. Cain called my attention to a pair of strange orioles that he had found nesting in Dimond Park, Oakland. The same afternoon I visited Dimond Park and found the birds which proved to be Hooded Orioles. The birds were feeding large young in a nest about 45 feet up in the top of a tall fan palm. The nest appeared to be composed of palm fibers and was fastened on the underside of one of the large outer palm leaves. The parent birds could not easily be observed, as they made swift and direct approaches to the nest. Once the male paused for several minutes on a branch of a near-by Monterey pine and permitted clearer observation. The feeding of the young could not be observed from the ground. When food was brought in there was much chattering from the young. The young left the nest by June 26, 1941.

Piranga ludoviciana. Western Tanager. A particularly late migrant of this species in fall plumage was observed in my yard on November 2, 1939. It was feeding on grapes.

Passerina cyanea. Indigo Bunting. While watching some House Finches bathing in a bird bath at my home in east Oakland, the morning of August 3, 1939, I caught sight of a flash of blue near the bird bath. When the bird moved into better light, I was quite surprised to see an adult male Indigo Bunting in slightly worn plumage. The bunting did not go directly to the bird bath but proceeded to "sip" drops of water that had been splashed on some vines below by the House Finches. After finishing drinking, it flew a few feet away, alighting on a concrete walk where it remained for several minutes and permitted easier observation. Finally the bunting made off in an easterly direction. The summer of 1939 was unusually dry and the Indigo Bunting in its quest for water was undoubtedly attracted by the House Finches that were noisily bathing. There is no question in my mind that it was an Indigo Bunting that I observed. The entirely blue plumage and the small size compared with the House Finches were carefully noted. This individual could have been an escaped cage bird, but it is an interesting coincidence to note that a group of bird students saw a male Indigo Bunting singing in Strawberry Canyon in Berkeley on June 24, 1939. Possibly it was the same individual I saw.

Spizella atrogularis. Black-chinned Sparrow. In search of Bell Sparrow nests on May 11, 1941, in Santa Clara County east of Mount Hamilton, H. W. Carriger in company with the writer flushed a strange bird from a nest that contained four unmarked pale blue eggs. A number of minutes passed



Fig. 21. Nest and eggs of Black-chinned Sparrow found May 11, 1941, near San Antonio Valley, northeastern Santa Clara County, California.

before the shy bird returned, during which time two photographs were taken of the nest. When on the nest, a flesh-colored bill and ashy gray chin revealed the bird as a female Black-chinned Sparrow. The nest was composed of grasses and lined with hair. It was about two feet from the ground in a ceanothus bush. Ceanothus and adenostoma with several scattered valley oaks and digger pines made up the chief plant growth in the area. The area appeared to have been burned over at one time, most of the present brush being only two to five feet high. The spot where the nest was found is on the road between Livermore and Mount Hamilton near San Antonio Valley, about a mile north of the intersection of the road to Patterson. A male heard singing in this same area the day the nest was found was the only other individual of this species seen. These sparrows are referable to the race *caurina* described from Las Trampas Ridge, Contra Costa County (Miller, Condor, 31, 1929:205-207).

Zonotrichia leucophrys. White-crowned Sparrow. On May 10, 1941, while in search of Steller Jay nests with H. W. Carriger in one of the canyons on the northern side of Rocky Ridge near Saint Marys College, Contra Costa County, my attention was called repeatedly to the characteristic opening notes of the song of the Nuttall race of the White-crowned Sparrow. Upon reaching the head of the canyon whence the song came, several adult White-crowned Sparrows were noted in the sage brush. Directly opposite Rocky Ridge is Las Trampas Ridge and on the same day we observed some on Las Trampas. Several individuals were young birds of the year which indicate they nest in the immediate vicinity. This record is interesting as it seems unusually far inland and also the region is more arid than the normal habitat of the subspecies. Just in recent years to my knowledge, this sparrow has become established in the Maxwell Park district of east Oakland. A pair seen feeding large young on May 5, 1939, was my first breeding record for this species in my neighborhood.

Zonotrichia albicollis. White-throated Sparrow. An adult bird was first noted feeding in company with a mixed flock of White-crowned Sparrows and Golden-crowned Sparrows at my home on November 27, 1939. It was trapped and banded on November 28 and was last noticed at my feeding station on December 4, 1939. It was quite antagonistic toward English Sparrows and all intruders of this alien species were vigorously ousted from the feeding trays. This individual and another that was found dead in Mills College, December 22, 1940, and later sent to the Museum of Vertebrate Zoology, constitute the only records I have of the appearance of this eastern species near my home.

Melospiza lincolni. Lincoln Sparrow. Since I began banding operations at my present location in the winter of 1938-1939, I have managed to band a Lincoln Sparrow every winter season. I first noticed this species around my residence in the winter of 1933-1934, when I collected one and had it identified (race *gracilis*). Although a few individuals were seen at intervals in the winters, I did not realize how relatively common the species was until December 29, 1940, while taking a bird census for Bird-Lore. Eight individuals were counted within a few minutes in patches of weeds and brush near my home. A late record for this species was April 18, 1941, when I banded an individual that had been singing around the house for several days.

Oakland, California, December 17, 1941.

FROM FIELD AND STUDY

Salt Feeding Habits of the House Finch.—House Finches (*Carpodacus mexicanus*), Lawrence Goldfinches (*Spinus lawrencei*) and Arkansas Goldfinches (*Spinus psaltria*) may be added to the list of birds that eat salt. Others include Red Crossbill, Cassin Purple Finch, and Pine Siskins, as noted by Aldrich (Condor, 41, 1939:172-173). Marshall added the Evening Grosbeak to the list (Condor, 42, 1940:218-219).

Salt was offered continuously in a partly wooded pasture at 900 feet elevation on the side of Mount Diablo, Contra Costa County, California. A near-by watering trough attracted seventy species during the year, of which four were seen to eat salt.

Direct feeding from the five-inch block was characteristic only of the House Finches. If the block was rain-softened, the birds might stand directly on top and bite off chunks. In dry weather the block was soft only underneath, and the birds then reached under to bite off pieces. Heavy dew induced a growth of crystals on the block. These the finches removed by using the beak sideways as a scraper. The average feeding time of individual birds was two minutes in dry weather, less in wet. Flocks of thirty to fifty House Finches would approach the block, but actual feeding was done alone or in pairs.

Pine Siskins and goldfinches were seen to pick at crystals occasionally, but most of their feeding was from the dirt within a foot of the block. These birds came in flocks and covered the salt-saturated ground. Eventually the blocks would be supported only by a tiny pedestal of dry earth, partly because of the salt dissolving at points of contact and partly due to the birds eating dirt and salt from underneath. Domestic animals were not using this salt and it thus was possible to ascertain accurately the effect of the birds' activities.

Siskins left the area with the passing of winter and Arkansas Goldfinches became less numerous. Lawrence Goldfinches used the salt through part of the mating and nesting seasons, but by June even these birds stopped coming.

House Finches definitely continued salt eating through the courting and mating seasons. If anything, there was an increased use of the salt. During the nesting season half of all birds trapped were taken with salt: total trapped, 60 males, 32 females; salt eaters, 35 males, 19 females. Three traps were used with equal results. Pairs were sometimes taken, one bird acting as decoy for the mate. Some of the birds taken were nesting on the house, most came from elsewhere, with salt as the main attraction.—JAMES G. PETERSON, *Diablo, California, January 2, 1942.*

The Lower California Nighthawk Not a Recognizable Race.—First doubts concerning the tenability of *Chordeiles acutipennis inferior* Oberholser were entertained some years ago (Birds of El Salvador, 1938:244-245) when certain Salvadorian specimens, identified by Oberholser himself as *Chordeiles acutipennis micromeris*, were seen to be indistinguishable from our series of *inferior* from Lower California. However, because the ranges of the two supposed races presumably were separated in northwestern Mexico by the larger *texensis*, the question remained quiescent. A reappraisal is now necessary.

To begin with, Oberholser (Bull. U. S. Nat. Mus., 86, 1914:100) recognized *micromeris* as extending north in western Mexico into Jalisco. He evidently included Sinaloa in the range of *texensis* on the basis of a single midwinter bird from Esquinapa and another, undated, from Mazatlan. His Sonora material seemingly also consisted of two birds, one from San Marcial in November, and another from the Colorado River in March. A series of 17 skins from the Tropical Zone of southern Sonora shows that *micromeris* actually extends northward to that point. In characters this series is rather uniform in color and seems to be indistinguishable in this respect from Central American birds. Compared with *texensis* they are darker and grayer dorsally, with more black on the pileum. Ventrally they are darker buff and have more prominent barring. In a series of 13 breeding birds from southern Lower California the darker extremes are completely lost in the Sonora group, although as a whole they are a little paler and more like *texensis*. On the other hand the pale extremes of *micromeris* from El Salvador are just the same as the average of birds from Lower California. As to measurements, the Sonora males are similar to *texensis*, the females to *micromeris*. Much more material is needed, however, to compile reasonably accurate averages, for individual variation is very great, even among birds from the same locality.

To summarize, I can see no reason for the recognition of a Lower California race as distinct from *Chordeiles acutipennis micromeris* Oberholser. In fairness to Dr. Oberholser it is proper to state that I do not believe he would ever have proposed *inferior* had breeding birds from northwestern Mexico been available to him at the time.

Extreme measurements of wing length in millimeters

Males		
20	<i>texensis</i> from California and Arizona	179-193
9	<i>texensis</i> from northern Sonora (Rancho La Arizona, El Alamo, Pilaes, Hermosillo)	178-196
10	<i>micromeris</i> from southern Sonora (Guaymas, Obregon, Tecoripa, Tesia, Camoa)	174-193
8	<i>micromeris</i> from Lower California	169-185
5	<i>micromeris</i> from El Salvador	173-180
Females		
10	<i>texensis</i> from California and Arizona	175-185
4	<i>texensis</i> from northern Sonora	171-179
7	<i>micromeris</i> from southern Sonora	166-177
4	<i>micromeris</i> from Lower California	167-178
8	<i>micromeris</i> from El Salvador and Costa Rica	171-175

I am indebted to Dr. L. B. Bishop and Mr. George Willett for the loan of certain specimens and to Dr. Pierce Brodkorb for measurements of the Sonora nighthawks at the Museum of Zoology of the University of Michigan.—A. J. VAN ROSSEM, *Dickey Collections, University of California, Los Angeles, December 2, 1941.*

An Unrecorded Eskimo Curlew from Colorado.—On a recent visit to Denver, Colorado, A. M. Bailey called my attention to the fact that the Eskimo Curlew had never been recorded from Colorado. There is a specimen of this bird in my collection, received some years ago. The original label had been replaced by one from the collection of Charles D. Klotz, Chicago, Illinois, and bears the inscription “#56 *Numenius borealis*, Denver, (Smith's Lake) Colorado, April 29, 1882—female—collected by D. D. Stone.” On the reverse of the label is marked “from the collection of H. K. Coale.” Another label attached to the specimen bears the inscription “from the collection of Ashley Hine, Chicago, Illinois,” with no other data. The specimen is now no. 6903 in my collection.—STANLEY G. JEWETT, *Portland, Oregon, September 16, 1941.*

Available Skeletons of the Passenger Pigeon.—Recently there came to our attention a mounted skeleton of a pigeon in the Department of Zoology of the University of California which had been in use for many years in laboratory demonstrations. A worn label pasted to the underside of the stand read “*Ectopistes migratorius*”! In view of the rarity of skeletal material of the Passenger Pigeon, this identification was checked and inquiry was made as to skeletons still extant.

The skeleton at hand originally came from Ward's Natural Science Establishment, Inc., Rochester, New York, and was acquired by the University of California, probably about 1890. The label on the skeleton bears the words “Western U. S.” and a number, “G-9281.” The latter is a number assigned to the Passenger Pigeon in Gray's “Hand-list of Genera and Species of Birds” (Part II, 1870:235); the “G” denotes skeletal material in the stock of Ward's Establishment. Other data on damaged parts of the label, including apparently a price figure and another stock number, are not decipherable. According to communications from Mr. F. H. Ward, this specimen was one of a series obtained in the public markets in the 1880's (certainly prior to 1889), when Passenger Pigeons were cheaper than domestic pigeons. More specific data cannot be given because of the loss of records by fire.

Through the kindness of Dr. Alexander Wetmore, we are able to list from the records of the U. S. National Museum the available complete skeletons of *Ectopistes migratorius*: Two at the U. S. National Museum; one at the Charleston Museum (South Carolina); two at the Peabody Museum, Yale University; and one at the Science Museum, St. Paul Institute, Minnesota. Our skeleton, complete except for certain skull parts, phalanges, and an injured right ulna, is now catalogued (no. 84315) in the collection of the Museum of Vertebrate Zoology of the University of California. This list of seven is doubtlessly incomplete. Mr. Ward writes further that at the time Shufeldt's study of the osteology of the Passenger Pigeon appeared (Auk, 31, 1914:358-362), Ward's had eight skeletons in stock. Shufeldt had one from the collections of the U. S. National Museum, the only skeleton known to him at that time.

No other skeletal material of *Ectopistes migratorius* has been at hand for comparison. The identification of our specimen was checked by comparison with specimens of *Zenaidura macroura* and *Columba fasciata*. Howard's study (Condor, 29, 1937:12-14) of remains of the Passenger Pigeon from

Rancho La Brea has been helpful, and the figures given below compare satisfactorily with those she gives.

	<i>Zenaidura macroura</i> (M.V.Z. no. 71585)	<i>Columba fasciata</i> (M.V.Z. no. 54522)	<i>Ectopistes migratorius</i> (M.V.Z. no. 84315)
(1) Length of coracoid	34.1 mm.	37.2 mm.	31.6 mm.
(2) Length of carpometacarpus	23.2	33.1	29.8
(3) Length of tarsometatarsus (greatest)	21.1	28.3	28.3
(4) Breadth of proximal end of tarsometatarsus	5.0	7.1	6.4
(5) Breadth of distal end	5.1	7.7	6.6
(6) Breadth of shaft	2.2	3.6	2.3
Ratio of item 4 to item 3	23.7 per cent	25.1 per cent	22.6 per cent
Ratio of item 5 to item 3	24.2	27.2	23.3
Ratio of item 6 to item 3	10.4	12.7	7.8

—FRANK A. PITELKA and MONROE D. BRYANT, *Museum of Vertebrate Zoology, Berkeley, California, January 16, 1942.*

Birds New to Bryce Canyon National Park.—On January 2, 1941, a large Bald Eagle (*Haliaeetus leucocephalus*) was observed near the north boundary of Bryce Canyon National Park, Utah. This constitutes the first record of this species from the park insofar as I have been able to determine.

On May 27, 1941, a heavy rainstorm created several ponds near the rim of Bryce Canyon, and it was on one of these ponds near Swamp Canyon that seven Cinnamon Teal (*Querquedula cyanoptera*) were observed feeding. The following day the pond had decreased in size considerably and the birds were gone. This is the first known occurrence of this species in the park.—RUSSELL K. GRATER, *Zion National Park, Utah, October 25, 1941.*

Purple Martins Using Leaves in Nest-building.—Hilda W. Grinnell reports in the minutes of the meeting of the Northern Division of the Cooper Ornithological Club for August, 1935 (Condor, 37:291-292) a nest of a Purple Martin (*Progne subis*), found by Alden Miller, which contained many clipped leaves of the California laurel (bay). Mr. Miller was sure that the leaves were taken by the martins, and the question was raised "as to whether the birds had in view the same idea which causes the housewife to put bay leaves into the nests of her sitting hens."

I have never seen any of these leaves, but note that they are described as aromatic. Since reading of this finding, I thought it might be of interest to report my observations of a colony of Purple Martins situated where I reside near McMillan, Luce County, Michigan.

The first bird house was erected here in the spring of 1915, and the Purple Martins were the first birds to examine it, but none nested until 1922, when 7 pairs used the houses erected for them. In the past few nesting seasons the colony has had over 30 pairs. During most of this period of time the houses have been in an area no larger than 60 by 25 feet.

In the course of the first few nesting seasons, the leaves of a pear tree were used by the martins in their nests and leaves of some apple trees were employed to a small extent. These trees are in a small orchard about 200 feet to the west of the colony. Beginning with the year 1928, the balm of Gilead trees have been of the greatest service to the martins in nesting. There are several of these among a group of trees standing on the north side of the colony. In this group are also some evergreens, 3 Juneberry, 2 mountain ash, and 1 each of apple, basswood, bird cherry, and black cherry. Also within 100 feet of the martin houses there are a few maples. To the east, and a little north and also a little south, not over 40 rods from the houses, is cut-over land in which there are beech, birch, elm, poplar, and other broadleaf trees.

I have listed the chief broadleaf trees that are within 80 rods of the martin houses in order that readers may know that the martins have several kinds from which to select material for the nests. The martins are seen at times on the basswood, maples, cherries, and others, and they may tear off parts of some of the large leaves of these trees for their nests. But their main choice, at least since the year 1928, has been the balm of Gilead. Many times I have seen a martin at a great height, feeding in the air, and then have watched it descend, alight on a balm of Gilead and get a leaf to take to the nest as it relieves its mate. Both sexes take part in gathering leaves, and it has appeared to me that leaves are taken from the time that no more other material is needed in nest-building until the eggs hatch.

As the leaves of the balm of Gilead are the first choice of this colony of martins and as these leaves have a balmy, or aromatic odor, support is given to the idea suggested above concerning their use as insect repellents. Most Purple Martin nests that I have seen are made of rather coarse materials, such as stems and straws, and even medium-sized potato stalks; mud is used by some, and it may be that leaves serve also as an insulating lining.—OSCAR MCKINLEY BRYENS, *McMillan, Luce County, Michigan, December 22, 1941.*

Late Breeding Record for the Cassin Kingbird.—A pair of Cassin Kingbirds (*Tyrannus vociferans*) built a nest high up in a eucalyptus tree growing in a yard at Corona del Mar, Orange County, California. They were observed feeding young in the nest on the very late date of August 18, 1941.—WILSON C. HANNA, *Colton, California, September 7, 1941.*

Soaring Snow Geese.—Flocks of Snow Geese usually move through the sky as if intent on keeping an appointment. The black and white of the wings enhance the impression of rapidity of the wing beats, and the incessant high-pitched honks add to the seeming purposefulness of the flights. On October 30, the writer was observing the feeding habits of Canada Geese on the Salicornia mud flats west of Brigham, Utah, when he witnessed a marked deviation from the normal flight habits of Snow Geese (*Chen hyperborea*). A flock of 123 of the birds came soaring slowly in from the north, some 500 feet overhead, taking advantage of the air currents. They looked much like a flight of White Pelicans, a species which the writer has observed on countless occasions on their breeding and feeding grounds in Utah, Oregon, and other western states. The small sizes of the body and bill and the forward position of the neck were, however, apparent through field glasses and precluded the possibility of the birds being pelicans. The birds made no effort either to gain or lose altitude, except for an occasional wing beat serving to keep the flock intact. They were unquestionably loitering and evidently were enjoying the activity. And to make the incident even more unusual, not a sound was given off by any of the birds. The flight was watched through field glasses periodically for forty minutes and during that time the ground distance covered by the flock is estimated to have been between 1 and 1½ miles.—C. S. WILLIAMS, *U. S. Fish and Wildlife Service, Brigham, Utah, December 5, 1941.*

Painted Redstart at Altadena, California.—On January 14, 1942, a Painted Redstart (*Setophaga picta*) several times came to my bird bath in Altadena, California, where I watched it from a window at a distance of fifteen feet. It came once the next day.

On January 19 it returned, and since a pull trap had been set over the bird bath, I was able to catch and band it. Because I had the bird in my hand and compared it with the colored plate in Mrs. Bailey's "Birds of New Mexico," I feel that there can be no mistake as to the identity. There is only one previous record of this bird mentioned in Willett's list of the birds of southwestern California (Pac. Coast Avif. No. 21, 1933:150).—WALTER I. ALLEN, *Altadena, California, January 23, 1942.*

Insect Food of the Sage Thrasher.—The Sage Thrasher (*Oreoscoptes montanus*) is a highly desirable resident of wheat- and alfalfa-field fence rows, as well as of sagebrush, greasewood and shade-scale range land, because of its beneficial, insectivorous food habits. This report on the food of this thrasher is based on an examination of 70 stomachs from birds collected throughout Utah in the years 1932 to 1941, inclusive. The abundance of grasshoppers present during outbreaks in these years apparently has been reflected in the large number of these present in the stomachs.

Recognizable insect food in the stomachs of eight specimens collected from March to the end of June consisted of the following: 10 grasshopper nymphs in five stomachs; 14 Hemiptera, including 1 predacious *Reduvius personatus*, 1 *Zelus socius*, 1 alfalfa bug (*Lygus elisus*), 1 each of the stink-bugs *Chlorochroa sayi* and *Carpocoris remotus*, and 1 *Nysius californicus*; Homoptera consisted of 2 leafhoppers and 1 sage aphid, *Macrosiphum coweni*; 42 beetles, including 2 scarabaeids, 3 click beetles, 1 buprestid, 7 darkling beetles, 1 clover leaf weevil and 1 alfalfa weevil; 2 cutworms, 1 being an army cutworm; 11 dipterous specimens, including 2 blowflies, 1 robberfly and 1 soldierfly; 174 Hymenoptera, of which 165 were ants. Many of the ants are common range and field pests, the harvester ant in particular preventing plant growth over sizable areas around its hills.

Recognizable contents of the stomachs of 62 thrashers of all ages, collected from July through October, consisted of the following: 138 orthopterous specimens, including 105 adult and 23 nymphal grasshoppers (mostly common injurious species), 5 field crickets, 1 snowy tree cricket, 1 coulee cricket, 2 cricket eggs, and 1 Jerusalem cricket; 5 termites; 1 thrips; 142 Hemiptera, including 4 pentatomids (*Euschistus inflatus*, *Thyanta custator* and *Chlorochroa sayi*), 109 adult and 7 nymphal false chinch

bugs, and 8 mirids of which 4 were the alfalfa bugs (*Lygus elisus* and *L. hesperus*); 229 Homoptera, including 191 aphids in one stomach, of which at least 4 were pea aphids, 30 adult and 3 nymphal beet leafhoppers in 16 stomachs, and 1 tree hopper, *Stictocephala gillettei*; 288 Coleoptera, including 3 larvae, 5 scarabaeids (1 *Phyllophaga decimlineata*), 53 leaf beetles, 5 rove beetles, 17 predacious ground beetles, 28 snout beetles (9 alfalfa weevils in seven stomachs and 2 clover leaf weevils), 1 ladybird beetle, 2 blister beetles (1 *Epicauta maculata*), 1 dermestid (*Dermestes lardarius*), 2 cerambycids and 4 buprestids; 60 lepidopterous larvae, including 13 sugarbeet webworms in three stomachs and 25 caterpillars which appeared to be cutworms (several army and variegated cutworms); 18 Diptera, including the large horsefly *Tabanus punctifer*, 6 maggots (apparently the common *Sarcophaga kelleyi* digested out of parasitized grasshoppers); 342 Hymenoptera, including 287 ants (many harvester and a few carpenter ants), several hornets and wasps, and 1 velvet ant; 5 insect eggs; 6 spiders in four stomachs. Also present were: several plant fragments, 2 weed seeds, and 18 black currants in six stomachs of birds taken during the summer of 1941 near roadside black currant bushes north of Snowville, Utah.—G. F. KNOWLTON and F. C. HARMSTON, *Utah Agricultural Experiment Station, Logan, Utah, December 15, 1941.*

Vesper Sparrow and White Pelican as Late Migrants in Oregon.—On November 28, 1940, while looking for small passerine birds along the center patrol road in the south part of Unit 1 of the Malheur National Wildlife Refuge, Oregon, the writer observed a single Vesper Sparrow (*Pooecetes gramineus*) fly from the ground to the low branches of a willow. Thinking the bird had sustained some injury that caused it to stay so long in that vicinity, the writer looked it over closely from a distance of about ten yards. No sign of injury was noticeable and the bird appeared to have normal flight. Gabrielson and Jewett (Birds of Oregon, 1940:562) state that this species migrates south in September, and the latest date recorded by them in Oregon is September 20, in Lake County.

On December 12, 1940, in the vicinity of Boca Lake in Unit 3 of the Malheur Refuge, a lone White Pelican (*Pelecanus erythrorhynchos*) was noted in the company of 1500 geese. The lake was covered by a solid sheet of ice and the pelican skidded some distance when landing. The geese paid little attention to it as it stood or walked among them. The pelican appeared to be uncomfortable because of the cold. Gabrielson and Jewett's (*op. cit.*: 90) latest record is November 13, in Klamath County.—CLARENCE A. SOOTER, *U. S. Fish and Wildlife Service, Burns, Oregon, December 17, 1941.*

The Systematic Position of *Ortalis wagleri* Gray.—In the course of recent field work in Sonora, I was surprised to observe that the chachalaca *Ortalis wagleri*, as compared with other members of the genus, possesses a distinct structural character. In life it bears a very conspicuous, almost cylindrical, tuft of semi-setaceous feathers about 25 millimeters in length, which rises vertically from the extreme anterior forehead or more properly from the base of the culmen. No other member of *Ortalis* seems to have this character, and I therefore propose as a subgeneric name

Peneloides new subgenus

Type.—*Ortalis wagleri* G. R. Gray.

Remarks.—In life the tuft is sharply separated from the short, normal feathers of the forehead. In dried skins it is invariably flattened along the crown and thus has escaped notice. *Ortalis wagleri* is obviously so closely related to a group otherwise represented only in South America that full generic separation seems inadvisable for the present. It may be that the conspicuous tuft of *wagleri* is unique, but field observation may show at least indications of it in related species, in which case the character would be a matter of degree. However, Mr. H. B. Conover and Dr. Alexander Wetmore, who have kindly inspected all the material available to them, have been unable to discover anything beyond a somewhat bristly tendency on the foreheads of some species. Whether the tuft is a sex character or not is a question. The three specimens personally observed and collected were males.

As an aside, which has no particular bearing on the present case, I cannot subscribe to the placing of *Ortalis leucogastra* as a race of *vetula*. *Leucogastra* is, of course, a geographic representative of the genus but I do not consider this circumstance a valid reason for reducing it to racial status. The plumage, particularly ventrally, is firmer and otherwise different in character from that of *vetula*,



Fig. 22. Head of the chachalaca *Ortalis wagleri*, showing tuft of feathers on forehead.

the tail is distinctly less graduated, and the large, naked throat patch is divided only by a thin, broken line of very short bristles. No intergradation with *vetula* has ever been shown.—A. J. VAN ROSSEM, *Dickey Collections, University of California, Los Angeles, November 26, 1941.*

Pacific Gull Color-banding Project.—Where and how do gulls migrate? What is their life history? In order to answer these questions, the Western Bird-Banding Association, with the co-operation of the United States Fish and Wildlife Service, color-banded 11660 young gulls of three species at eleven nesting colonies in the summers of 1938, 1939, 1940 and 1941.

The seven original colonies (see Condor, 41, 1939:38) were marked in the course of a scheduled three-year period as follows:

Colony	1938		1939		1940	
	right leg	left leg	right leg	left leg	right leg	left leg
<i>N. Coronado Island, Mexico</i> (off San Diego, Calif.): 859 Western Gulls; Mrs. M. C. Sargent.	Red Survey Red	.....	Red Red Survey	.....	Red Survey Red	.....
<i>Three Arch Islands, Oregon:</i> 283 Western Gulls; Reed Ferris.	Survey	Red Blue	Blue Survey Red	.....	Survey	Blue Red
<i>Haystack Rock, Oregon:</i> 1958 Western Gulls; Reed Ferris.	Blue	Red Survey	Red Survey Blue	.....	Red	Blue Survey
<i>Mono Lake, California:</i> 1510 California Gulls; Walter F. Nichols.	Blue Survey	Blue	Survey Blue	Blue	Survey	Blue Blue
<i>Yellow Island, Haro Straits, British Columbia:</i> 699 Glaucous-winged Gulls; Dennis Ashby.	Yellow Blue	Survey	Blue Yellow	Survey	Blue Survey Yellow	.....
<i>Gull Island, Howe Sound, B.C.:</i> 213 Glaucous-winged Gulls; Kenneth Alexander.	Yellow Survey	Blue	Yellow Survey Blue	.....	Blue Survey	Yellow
<i>Mittenatch Island, Strait of Georgia, B.C.:</i> 479 Glaucous-winged Gulls; Theed Pearse.	Yellow Survey	Yellow	Yellow Yellow	Survey	Yellow Survey Yellow	.....

Four additional colonies have been banded as follows:

	1939		1940		1941	
	right leg	left leg	right leg	left leg	right leg	left leg
<i>Great Salt Lake, Utah:</i> 2834 California Gulls; A. M. Woodbury.	Red Survey	Yellow	Red Yellow	Survey	Red Survey Yellow	.....
<i>Utah Lake, Utah:</i> 2000 California Gulls; Vasco M. Tanner.			Yellow Red	Survey	.....	Red Survey Yellow
<i>Puget Sound, Washington:</i> 500 Glaucous-winged Gulls; Robert S. Bach.			Yellow White	Survey		
<i>Klamath Falls, Oregon:</i> 325 California Gulls; Carl Richardson.			Black Survey Blue	.....	Black Survey	Blue

Many good records have now been received on the movements of the immature gulls. However, as yet no evidence has been obtained on the breeding of the adults. Therefore, the Association welcomes the continued cooperation of all bird students in watching for these color-banded gulls, and, if opportunity offers, in visiting nesting colonies.

If a bird is found dead, send the numbered aluminum Survey band to the U. S. Fish and Wildlife Service, Washington, D.C. If a live gull is seen, observe *carefully* the color combination, and report, with date, place and your name to the writer.—Mrs. M. C. SARGENT, Box 109, La Jolla, California, January 23, 1942.

Winter Records of the Sora Rail in Washington.—In the Washington State Museum are two skins of the Sora Rail (*Porzana carolina*) taken in the vicinity of Seattle, Washington, in the months of November and January. So far as present information goes these are the first late fall and winter records of this bird in the state, and they constitute a considerable northward and westward extension of the winter range of the species. The nearest winter localities given by Ridgway and Friedmann (U. S. Nat. Mus. Bull. 50, part 9, 1941:138-139) are Marysville, California, nearly 600 miles south of Seattle, and Corvallis, Montana (where the species is only "occasional in winter"), about 390 miles to the east. Data for the two specimens are as follows: W.S.M. no. 11006, adult male taken at Seattle, Washington, on January 10, 1937; "Found frozen, starved.—by Jim Trot." Received

of W. W. Dalquest; wing 106.0 mm., tail 48.0, culmen 19.0, tarsus 34.0. W.S.M. no. 10336, adult male taken at Sammamish Slough, King County, Washington, on November 28, 1933; collected, after accidental death, by Walter W. Dalquest; wing 103.5 mm., tail 44.0, culmen 17.2, tarsus 31.5.—J. W. SLIPP and M. R. FLAHAUT, *Washington State Museum, Seattle, January 21, 1942.*

The European Starling in California.—Under date of January 22, 1942, C. G. Fairchild, Refuge Manager of the Tule Lake National Wildlife Refuge, Siskiyou County, California, wrote me as follows: "Wish to advise you that Howard Cantrell collected a starling at the Peninsula Cabin. He saw a flight of about forty, east of the town of Tulelake, California. He also saw another bunch around the Peninsula Cabin of approximately four." On February 4, 1942, I received by mail a specimen of starling (*Sturnus vulgaris*) in the flesh with a tag bearing the following inscription: "Howard Cantrell, January 10, 1942—11:30 a.m. Peninsula Cabin." The bird, an adult male, has been prepared as a study skin and the stomach saved for future study. So far as is known, this is the first record of the European Starling in the state of California.—STANLEY G. JEWETT, *Portland, Oregon, February 4, 1942.*

Winter Range of Oklahoma's Hybrid Orioles.—A few years ago the writer reported on oddly plumaged orioles from Oklahoma which he believed to be hybrids between Baltimore and Bullock orioles, *Icterus galbula* and *Icterus bullockii* (Auk, 55, 1938:1-6). Recently, while examining the Baltimore Orioles in the collection of the American Museum of Natural History, he came upon three more of these hybrids, all highly plumaged males from Guatemala. The most obviously intermediate of the three is very much like figure 2 in the color plate illustrating the Oklahoma birds, the principal difference being that in the Guatemala bird the corners of the tail are orange rather than yellow, and the white tipping of the greater coverts is a little less extensive. This bird (no. 398609) was taken at San Lucas, Guatemala, on December 26, 1927; it was probably in its winter home (see Griscom, Bull. Am. Mus. Nat. Hist., 64, 1932:390). The other two (nos. 398601 and 398597) were taken at San Lucas, November 16, 1926, and at Panajachel, October 14, 1926. They are closer to *galbula* than to *bullockii*, but the paleness of the middle coverts, the extensive white tipping of the greater coverts, and a tendency to dusky tipping of the outer rectrices reveal their *bullockii* blood. Close examination of all Central and South American specimens in our museums will doubtless reveal further examples of these hybrids, and it would be interesting to discover where most of them winter.—GEORGE MIKSCHE SUTTON, *Cornell University, Ithaca, New York, October 20, 1941.*

Osprey at Baldwin Lake, San Bernardino Mountains.—A lone Osprey (*Pandion haliaetus*) was observed at Baldwin Lake, San Bernardino Mountains, California, on May 11, 1941. The bird was hunting over the northern part of the lake and was viewed for some time at fairly close range with seven-power glasses. It did not capture anything while James Fairchild, a boy scout, and I watched it. Occurrences of this species in this vicinity are so rare that they should be recorded.—WILSON C. HANNA, *Colton, California, September 6, 1941.*

Interior Dowitcher in the State of Washington.—In the course of recent studies of dowitchers from California and Oregon in various collections, a comparatively large number of skins of the interior race (*hendersoni*) of this bird has been recognized. There is a full-plumaged adult male *Limnodromus griseus hendersoni* in my collection taken at Westport, Grays Harbor County, Washington, on April 26, 1940. Although this race has not before been recorded from Washington, I predict that when Washington-taken specimens of dowitchers are given more study, a considerable proportion of them will prove to be this interior form. The race *hendersoni* Rowan (Auk, 49, 1932:14-35) was described too late to be included in the last check-list.—STANLEY G. JEWETT, *Portland, Oregon, September 25, 1941.*

Prairie Falcon Food Habits.—On May 28, 1939, I found a Prairie Falcon's (*Falco mexicanus*) nest about six miles north of Schurz, Nevada. The nest contained four young about 10 days old. Seventeen pellets were picked up in and under the nest, and these were analyzed with the following results: 13 pellets contained remains of ground squirrels, *Citellus mollis* (10 without other contents); 3 contained horned lark (1 nothing else); 2 contained grasshoppers; 2 contained pentatomid bugs; 1 contained beetles; and 1 contained hair of what appeared to be a young kangaroo rat. The insects probably could have been counted, but the mammal and bird material could not be. The importance of ground squirrel and horned lark in the Prairie Falcon diet in this region is borne out by my occa-

sional observations of hunting falcons there. Mr. Charles Miller assisted in some of the identifications of the material listed above.

Another Prairie Falcon nest about 20 miles north of Yerington, Nevada, was visited on June 10, 1941. There were two young birds in the nest and two that had just left it. Thirty-eight pellets were picked up in and under the nest and all contained hair of *Citellus mollis* and nothing else. In addition there were partly eaten remains of seven of these squirrels in fairly fresh condition in the nest. The squirrels were very fat, and most of them had been skinned back from the head, as reported in an earlier note (Bond, Condor, 38, 1936:75). No remains of birds were found at this nest, although several species were abundant in the neighborhood.—R. M. BOND, *Piedmont, California, February 11, 1942.*

February Records for the Black-headed Grosbeak.—Here in the San Francisco Bay region the Black-headed Grosbeak (*Hedymeles melanocephalus*) is a common summer resident, arriving about the middle of April and leaving in late September. The earliest date of arrival which I have found reported is April 4, as given by Mrs. A. S. Allen (Condor, 35, 1933:226). The latest date of departure which she gives is October 7.

On the morning of February 19, 1942, while driving on College Avenue near the Oakland-Berkeley line, I saw a Black-headed Grosbeak lying in the street between the car tracks. Before my son could retrieve it, the bird was somewhat damaged by a passing truck, but even so made a good study skin, and is now no. 84639 in the Museum of Vertebrate Zoology. The bird could not be sexed because of injuries, but is in male plumage, which is in excellent condition, making it improbable that it was an escaped cage bird. An abraded area on the head makes it seem possible that the bird had been stunned by striking an overhead wire before falling to the street.

Mention of this specimen elicited from Dr. Richard M. Eakin the information that at about sunset on February 16, or 17, while crossing the campus of the University of California between the President's House and Haviland Hall, he had heard the song of a Black-headed Grosbeak, but did not see the bird. Miss Susan Chattin adds that on February 24 she had an excellent view of a Black-headed Grosbeak on the lower campus, near the Center Street entrance.—HILDA W. GRINNELL, *Museum of Vertebrate Zoology, Berkeley, California, March 9, 1942.*

Social Behavior of the Oregon Junco.—In the course of two winters, observations have been made which seem to indicate that the foraging behavior of flocks of the Oregon Junco (*Junco oreganus*) shows a distinct pattern. Deep snow was a common condition at my station at 5000 feet elevation on Cuyamaca Peak, San Diego County. Corn meal was spread on the snow, with one or two central heaps. As an individual junco came to feed, the tail would be spread each time a morsel of food was picked up. Succeeding birds would not alight on the feeding area at random, but would perch on a shrub or some other elevated point in order to view the flock. Careful appraisal would soon reveal that at one or two points the feeding birds were flashing their tail marks very rapidly. Invariably it was to one of these points that the new and hungry bird would fly, and in alighting force the feeding bird to vacate the spot where cornmeal was piled. The failure of the feeding bird to obtain food was a sign for the flock to break up. By the first of April the birds would flutter their wings, trill, fly-at one another and rise a foot into the air in combat. Necessity of sharing the food passed quickly and the birds lost their flock unity with the coming of spring.—JAMES G. PETERSON, *Diablo, California, January 2, 1942.*

Birds Affected by Botulism at Soda Lake, Nevada.—What was judged to be an epidemic of botulism was observed from July 26, 1941, to August 19, 1941, among the birds inhabiting the vicinity of Soda Lake, Churchill County, Nevada. Individual birds showed various symptoms, some of which were limberness of the neck, greenish diarrhea, drooping of the wings, and muscular weakness. Torticollis, or twisting of the neck, was noted among many Avocets. Some birds seen along the shore entered the water and made slow progress by flapping along on the surface.

On numerous occasions birds were observed apparently feeding on what was thought to be the dead bodies, or dead larvae, of many soda flies (*Ephydra hians*). These flies were piled from one-half to one inch high in many places around the water's edge at the southwest tip of the lake, and it was at this point where dead birds were found. Regrettably, these insects were not submitted to an entomologist for identification.

Accompanied by Mr. Vernon L. Mills, a visit was made to the lake on July 26, 1941. We saw one Black-necked Stilt (*Himantopus mexicanus*) in an advanced stage of sickness. Other birds found

that appeared to have died within the past few days were as follows: Avocet (*Recurvirostra americana*), 16; Killdeer (*Oxyechus vociferus*), 2; Ruddy Turnstone (*Arenaria interpres*), 1; Snowy Plover (*Charadrius nivosus*), 1; Western Sandpiper (*Ereunetes mauri*), 1; Mallard Duck (*Anas platyrhynchos*), 1; Wilson Phalarope (*Steganopus tricolor*), 2; Western Meadowlark (*Sturnella neglecta*), 1. The Ruddy Turnstone and the Snowy Plover were saved as specimens (Mus. Vert. Zool. nos. 83266 and 83265, respectively). The turnstone is a new record for the state and the plover is also a noteworthy record.

On July 27, 1941, we again visited the area and found the following dead birds: Avocet, 1; Solitary Sandpiper (*Tringa solitaria*), 1. One Killdeer was found that was unable to fly.

On July 29, 1941, dead birds were found as follows: Avocet, 3; Killdeer, 1. One Western Sandpiper was found in a dying condition.

On August 7, 1941, we found more dead birds than at any other time. They were: Avocet, 30; Black-necked Stilt, 15; Western Sandpiper, 8; California Gull (*Larus californicus*), 2; Bonaparte Gull (*Larus philadelphia*), 1; Pintail Duck (*Dafila acuta*), 2; Mallard Duck, 1; Killdeer, 7; Black Tern (*Chlidonias nigra*), 1.

On August 11, 1941, dead birds found were as follows: Shoveller (*Spatula clypeata*), 1; Gadwall (*Chauliasmus streperus*), 1; American Coot (*Fulica americana*), 2; Avocet, 2; Black-necked Stilt, 2.

On August 19, 1941, all birds in the area appeared to be in a more healthy condition. One Green-winged Teal (*Nettion carolinense*) and one Cinnamon Teal (*Querquedula cyanoptera*) were found that appeared to have died recently.

On August 22, 1941, no dead or sick birds were seen. One large coyote was seen in the vicinity and numerous coyote tracks along the water's edge indicated that possibly these animals were feeding on the affected birds. Visits to the area on September 4, 16, and 22 revealed no evidence of dead birds.

—J. R. ALCORN, Fallon, Nevada, February 7, 1942.

NOTES AND NEWS



Fig. 23. Dr. and Mrs. James P. Chapin, on the occasion of the field trip of the American Ornithologists' Union to Mount Evans, Colorado, September 5, 1941.

On April 3, 1942, the Cooper Ornithological Club will assemble in San Diego for its Sixteenth Annual Meeting. Sessions for the presentation of papers are scheduled for Friday and Saturday, April 3 and 4, at the Natural History Museum, in Balboa Park. The local committee on arrangements, consisting of Clinton G. Abbott, chairman, James E. Crouch, James B. Dixon, Ed N. Harrison and Laurence M. Huey, has planned field trips for Sunday, April 5. Members who have attended the earlier meetings in San Diego, which proved to be highly enjoyable and profitable, can look forward with special anticipation to the return of the Club to that city. A special feature promised to out-of-town members is a visit to the justly famous San Diego Zoo. The zoological gardens there have grown rapidly in the past few years and many unusual reptiles, birds, and mammals have been added to the collection.—A. H. M.

What has happened to the enthusiasm with which Californians established their great system of State Parks? Only a little more than ten years ago large numbers of persons were active in the selection of many parcels of land to be set aside for some special use and protected by the State. Point Lobos Reserve was singled out for extra effort and it was nurtured with so much care and study that it came to be recognized by

thousands of persons as the most valuable bit of land in California. But not everyone recognizes at a glance the need for constant vigilance if this value is to be preserved. In the past five years schemes for economy or opportunity for harmful activity in the Reserve have been discovered by so many persons and groups of people as nearly to smother the working of the plan originally adopted as essential to the preservation of the peculiar values of the area for visitors. One person has struggled to carry out the provisions of this plan. But this is not a task for one person. Every person who appreciates the ideals represented by the maintenance of Point Lobos needs to revive his interest or this spot will soon again be just another weed-filled, track-scarred, picnic ground, too far away to invite a visit. How can we expect to combat forces in remote places, that worship only power and materials, without first making effort to keep our own ideas of worth in good order? The least that any person can do to maintain this symbol of our appreciation of Nature is to acquaint himself with the injuries it is receiving and then to encourage its most active sponsor, the Save-the-Redwoods League, to maintain its guard and see that the harm is warded off.—JEAN M. LINSDALE.

Welcome is extended to the new chapter of the Cooper Club in Tucson, Arizona. The organization of an active group of members in the Tucson area is a happy occasion for the Club as a whole. The officers of the chapter, President Edouard C. Jacot and Secretary Mary Jane Nichols, have outlined a program of field study which as a group undertaking sets an excellent example for other divisions of the Club. In brief, the plan calls for field trips at two-week intervals, with card file records of observations made by the participants.—A. H. M.

Losses of prominent ornithologists have been severe in the past few months. Recently we learned of the passing of Dr. Casey A. Wood, especially known for his studies of the eyes of birds and for his bibliographic work in vertebrate zoology. On February 14, death came to Dr. Glover M. Allen, distinguished scholar and writer in the fields of mammalogy and ornithology and since 1937 editor of the *Auk*.

Included in this issue of the *Condor* is the first account of the invasion of California by the Starling. Stanley Jewett's report (p. 79) of this regretted, but inevitable, event is presented to our readers as quickly as possible so that field observers may be on the alert to obtain all possible details of the subsequent progress of the invasion.

MINUTES OF COOPER CLUB MEETINGS

NORTHERN DIVISION

DECEMBER.—The regular monthly meeting of the Northern Division of the Cooper Ornithological Club was held on Thursday, December 18, 1941, at 8:00 p.m., in Room 2503 Life Sciences Building, Berkeley, with President E. Lowell Sumner, Jr., in the chair and about 50 members and guests present. Minutes of the Northern Division for November were read and approved. Names proposed for membership were: Ralph H. Miller, 2412 Channing Way, Berkeley, and Roland Kent Miller, 2410 Channing Way, Berkeley, both by Alden H. Miller; Lyman Walton Breed, 2319 College Avenue, Berkeley, by Seth B. Benson.

Mr. Harwell announced that the Annual Convention of Audubon Societies in California would be held at Santa Barbara, January 23-25, 1942. The president appointed a nominating committee, to consist of Mrs. Amelia S. Allen, W. I. Follett and Alden H. Miller, chairman.

Mr. Covel described clouds of Snow Geese in the Federal Wildlife Refuge in the Sacramento Valley on shooting days; it is very apparent that the birds have become "refuge wise." Mr. Linsdale spoke of the scarcity of small land birds at Hastings Reservation. Due to almost complete failure of the acorn crop, only one California Woodpecker had been seen in two months.

Dr. T. Eric Reynolds spoke on "Migratory Movements of Western Birds." He had selected for study an arbitrary area included in a 100-mile radius with Berkeley as the center. Different migratory trends were discussed, namely, altitudinal movements, counter-currents northward, moving out of a territory after nesting, westward movements, etc.

Adjourned.—FRANCES CARTER, *Recording Secretary*.

JANUARY.—The regular monthly meeting of the Northern Division of the Cooper Ornithological Club was held on Thursday, January 22, 1942, at 8:00 p.m., in Room 212 Wheeler Hall, University of California, Berkeley, with Vice-president R. M. Bond in the chair and about 45 members and guests present. Minutes of the Northern Division for December, 1941, were read and approved. As chairman of the nominating committee, Mr. Alden H. Miller presented the same slate of officers (President, E. Lowell Sumner, Jr.; Vice-president, Richard M. Bond; Corresponding Secretary, Hilda W. Grinnell; Recording Secretary, Frances Carter) to continue in office for the coming year, and the meeting was opened to nominations from the floor. It was moved and carried that the nominations be closed and the secretary instructed to cast an unanimous ballot for the list as presented.

Mr. Miller announced receipt of a letter from

the Bird Club Section of the Tucson Natural History Society, Tucson, Arizona, which is desirous of forming a new Chapter of the Cooper Ornithological Club. The Secretary, Mrs. Mary Jane Nichols, stated that the local organization had been active since 1940 and included a number of members of the Cooper Club. The formal application, which will be considered before both divisions of the Club, was unanimously accepted by the Northern Division at this meeting.

A number of local field notes were reported. Mr. Bond received a telephone message concerning robins which were becoming "groggy" on red berries. It is known, he commented, that certain species of cotoneaster and pyracanthus have a sedative or toxic effect. B. C. Cain reported that for the first time in 17 years, a California Woodpecker had come actually into the grounds of the Scout Camp in Dimond Canyon. The acorn crop has not been heavy in the surrounding area. He also called attention to the fact that the birds were no longer being fed at Lake Merritt, Oakland, due to the cutting of appropriations.

Mr. Jean M. Linsdale spoke on "The Natural History of the Yellow-billed Magpie." He has carried out extensive studies on this species at the Hastings Reservation in Monterey County, where nesting activity begins in early fall, although nesting may occur as late as June. This species is resident, although complete absences of as long as 10 days from parts of the range may occur. In this connection, Mr. Linsdale added that migration is probably characteristic of all birds but is exhibited to a greater or lesser degree.

Adjourned.—FRANCES CARTER, *Recording Secretary*.

SOUTHERN DIVISION

NOVEMBER.—The regular monthly meeting of the Southern Division of the Cooper Ornithological Club was held at the Los Angeles Museum on Tuesday, November 25, 1941, with President Hildegard Howard in the chair and about 27 members and guests present. The minutes of the October meeting were approved as read. The following applications for membership were read: John W. Slipp, Botany Department, University of Washington, Seattle, Washington, proposed by W. Lee Chambers; and Esther Jeanette Rideout, 709 Oak Street, Santa Ana, California, proposed by John McB. Robertson.

A letter from the American Association for the Advancement of Science was read, stating that its next meeting would be held in Salt Lake City, Utah, June 15 to 20, 1942.

The publishers of "Trail Magazine" made an offer of a free notice for the Cooper Club. A motion for its acceptance was made by George Willett and seconded by Sidney B. Peyton. The motion was put to vote and carried.

President Howard then introduced the speaker of the evening, Dr. Carlton M. Herman, who

presented a lecture entitled "Coccidiosis of Birds." The subject was necessarily of a technical nature but was presented in a manner understandable to all. The paper was then opened to discussion, which was freely participated in by those present.

On November 2, 1941, Mr. Arthur Berry reported seeing three Cowbirds. George Willett asked Sidney B. Peyton about the band of a Condor which had been reported found. Mr. Peyton stated that the band was found in August, 1941, and was from a bird that had been banded in 1939.

Adjourned.—IRWIN D. NOKES, *Secretary*.

DECEMBER.—The regular monthly meeting of the Southern Division of the Cooper Ornithological Club was held in Room 145, Allan Hancock Foundation, Los Angeles, on Tuesday, December 30, 1941, at 8:00 p.m., with President Hildegarde Howard in the chair and about 100 members and guests present. The minutes of the November meeting were approved as read. The following applications for membership were read: I. C. Adams, Jr., Box 2592, San Diego, California, proposed by W. Lee Chambers; Dr. Charles F. Walker, Stone Laboratory, Put-in-Bay, Ohio, proposed by Margaret M. Nice; and Arthur L. Berry, 1818½ South Chapel St., Alhambra, California, proposed by Sidney B. Peyton.

Dr. Loye Miller made a motion that appreciation be expressed for use of Room 145 in the Allan Hancock Foundation for the evening and requested that we make arrangements for its future use. The motion was seconded by J. S. Appleton and carried.

President Howard appointed a committee consisting of J. R. Pemberton, Sidney B. Peyton, and George Willett for the purpose of nominating officers for the ensuing year.

President Howard then presented Mr. Ed. Harrison and Mrs. Frances Roberts whose motion picture subject was entitled "More Birds." The four reels of color film shown appeared under the following captions: "Prairie Dogs and Burrowing Owls," "Birds of a Mountain Meadow," "The Golden Eagle," and "Birds of an Inland Lake."

Adjourned.—IRWIN D. NOKES, *Secretary*.

JANUARY.—The regular monthly meeting of the Southern Division of the Cooper Ornithological Club was held on Tuesday, January 27, 1942, at 7:45 p.m., in Room 145, Allan Hancock Foundation, Los Angeles, with President Hildegarde Howard in the chair and 96 members and guests present. Minutes of the Southern Division for December, 1941, were read and approved. The following applications for membership were read: Erle D. Morton, Route 2, Box 625, Tuc-

son, Ariz., and Joseph S. Wright, P. O. Box 2423, Tucson, Ariz., proposed by Mary Jane Nichols; Beatrice Wise Nielsen, Wm. Penn Hotel, 2208 West 8th St., Los Angeles, Calif., proposed by W. Lee Chambers; and Fletcher G. Palmer, 419½ North 1st Ave., Upland, Calif., proposed by John McB. Robertson.

A letter from the Tucson Natural History Society requesting permission to form a chapter of the Cooper Ornithological Club in Tucson, Arizona, was read and notice given that the Northern Division had passed favorably on their application on January 22, 1942. Frank G. Watson proposed that the Southern Division similarly approve the request. The motion was seconded by Sherwin F. Wood and carried unanimously.

A letter from the University of Southern California, stating there would be a charge of \$5.00 per meeting to defray cost of heat, light, and janitor service for the use of Room 145, Allan Hancock Foundation, was read and it was announced that Secretary Irwin D. Nokes had accepted these conditions for the January meeting. A motion by W. Lee Chambers, seconded by George Willett, that the matter be tabled until Captain Hancock could be contacted was unanimously carried.

Mr. C. A. Harwell announced that the California Convention of the National Audubon Society, held at Santa Barbara, January 23 to 25, 1942, was attended by over 300 persons.

The President called for a report of the nominating committee and Chairman George Willett proposed for President, Sherwin F. Wood; for Vice-president, Irwin D. Nokes; and for Secretary, Jack C. von Bloeker, Jr. There being no further nominations, these persons were elected by unanimous ballot. President Wood took the chair.

Mr. Willett announced the death of Dr. Casey A. Wood.

President Wood introduced the first speaker of the evening, Mrs. Mary V. Hood, of Los Angeles, California, who spoke on "Infancy of Woodpeckers" and "Ecological Studies in California." Both topics were illustrated with very excellent kodachrome slides made by Mr. and Mrs. Hood.

The President then introduced the second speaker of the evening, Mr. W. L. Finley, of Portland, Oregon, who, assisted by Mrs. Finley, showed a very fine collection of kodachrome slides of birds and mammals of Washington, Oregon, California, Arizona, Montana, and Wyoming.

The meeting was then opened to discussion and for reports of observations.

Adjourned.—JACK C. VON BLOEKER, JR., *Secretary*.



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For Sale, Exchange and Want Column.—Each Cooper Club member is entitled to one advertising notice in any issue of *The Condor* free. Notices of over ten lines will be charged for at the rate of 15 cents per line. For this department, address JOHN MCB. ROBERTSON, Buena Park, California.

FOR SALE—"Field Guide to the Birds of Eastern Washington, Eastern Oregon, and Idaho," 1942, 43 pp., 50¢; "Check-list of the Birds of Southeastern Washington, Northeastern Oregon, and adjacent Idaho," 1942, 4 pp., 5¢. Have many sets of birds' eggs and nests to exchange for bird and mammal skins, or for back numbers of the *Journal of Mammalogy*, or *North American Faunas*.—ERNEST S. BOOTH, *Walla Walla College, College Place, Washington*.

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WANTED—Our want-list includes certain issues of many natural history journals such as *The Auk* (v. 6:1, v. 55-56), *Erythea* (v. 1-2), *Jour. of Geol.*, *Jour. of Paleont.*, *Mineralogist* (v. 1), *Natl. Geog.* (v. 1-16), *West Amer. Scientist*, *Wilson Bulletin*, etc., and the publications of the *Amer. Mus.*, *Acad. Sci. Philadelphia*, *Boston Soc.*, *Calif. Acad. Sci.*, *Carnegie Inst. Wash.*, *Natl. Acad. Sci.*, *Smithsonian Inst.*, *U. S. Natl. Mus.*, etc., and separate titles.

We have duplicates from many series, besides *Bulletins of the Santa Barbara Soc. Nat. Hist.*, *Jour. Mus. Comp. Oology*, and our own publications for exchange. Also a copy of Studer's "Birds of N. Amer." For details address: THE LIBRARY, *Santa Barbara Museum of Natural History, Santa Barbara, California*.

WANTED—Osprey, numbers 1-4, 6 and 8 of vol. 1 and number 7, vol. 6, general index vol. 4; *Nidologist* no. 9, vol. 4; *Ornithologist and Oologist* vol. 6; *Condor*, vol. 2, 21-24, and 1st and 3rd ten-year indexes. Cash or exchange of various duplicate journals, a list of which will be sent on request.—ALFRED O. GROSS, *Bowdoin College, Brunswick, Maine*.

WANTED—*Wilson Bulletin*, No. 65 (Vol. XX, No. 4, Dec. 1908). Will pay a good price, or offer other rare *Wilson Bulletins* in exchange.—W. LEE CHAMBERS, *2068 Escarpa Drive, Eagle Rock, California*.

FREE—"Common Woodpeckers in Relation to Oregon Horticulture," by J. A. Neff, 104 pp., 21 ills., 17 charts; published in 1928. We will mail these to anyone sending us twenty cents to defray mailing expense.—W. LEE CHAMBERS, *Business Manager, 2068 Escarpa Drive, Eagle Rock, Los Angeles, California*.

NOTICE

To the members of the Cooper Ornithological Club, notice is hereby given that the annual meeting of the members of Cooper Ornithological Club, a corporation, will be held at the Natural Science Museum, Balboa Park, San Diego, California, on Friday, the 3d day of April, 1941, at the hour of 9:30 o'clock a.m., for the election of directors and for the transaction of such other business as may be brought before the meeting.

GEORGE WILLETT, *Secretary*.

HOWARD ROBERTSON, *President, Board of Directors*.

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MISCELLANEOUS PUBLICATIONS

Biographies

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Robert Ridgway; 118 pp., 50 ills., with a complete bibliography of his writings (from Condor, 1928) - - - - \$.50

Bird Art Catalogues

Catalogue of an exhibition of paintings by American Bird Artists, First Annual Meeting, Los Angeles Museum, April, 1926; 24 pp. - - - - \$.50

Catalogue of the work of Major Allan Brooks shown in connection with the third annual meeting of the Cooper Ornithological Club May 4-6, 1928, under the auspices of the San Diego Society of Natural History, Fine Arts Gallery, Balboa Park, San Diego, Calif.; 10 pp. - - - - \$.25

Catalogue of an exhibition of bird paintings by Lynn Bogue Hunt, sponsored by the Southern Division of the Cooper Ornithological Club at the Los Angeles Museum, April, 1929; 16 pp., portrait of Lynn Bogue Hunt, and 7 half-tones - - - - \$.25

An exhibition of scientific drawings by John Livzey Ridgway, shown by the Los Angeles Museum, on the occasion of the Fifth Annual Meeting of the Cooper Ornithological Club - - - - \$.25

Catalogue of an exhibition of original water colors by Major Allan Brooks, shown under the auspices of the Cooper Ornithological Club, Los Angeles Museum, April, 1936 (Eleventh Annual Meeting of the C. O. C.); 15 pp. and 9 half-tones, including one of Major Brooks - - - - \$.25

Other Publications

The Story of the Farallones, 1897; 36 pp., 28 ills. \$.10
By C. BARLOW

Report of the Birds of Santa Barbara Islands. Pub. No. 1, Pasadena Acad. Sci., August, 1897; 26 pp. - - - - \$1.00
By J. GRINNELL

Birds of the Pacific Slope of Los Angeles County. Pub. No. 2, Pasadena Acad. Sci., March, 1898; 52 pp. \$.25
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